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EDUCATION

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Geography for the Duration
By OTIS W. FREEMAN

Geopolitics
By H. F. RAUP

Maps in War Time
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GEOGRAPHY NUMBER

OTIS W. FREEMAN, *Editor*
Eastern Washington College of Education
Cheney, Washington

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EDUCATION

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Geography *for the* Duration

By OTIS W. FREEMAN
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THE Japanese attack on Pearl Harbor brought changes that have affected the lives and activities of all of the 130,000,000 people in the United States. Our personal plans, occupation, industries, and educational institutions have all been profoundly modified. Among the school subjects, geography can make noteworthy contributions to education in a world at war. It is important that we understand the strength and weaknesses of our enemies and the apparant reasons for their attacks upon us. Likewise of vital importance is a knowledge of the resources and geography of the United States so that a wide view can be taken of our country and its needs, so that plans necessary for victory and organizations of all our strength can be completed.

In Germany certain geographers and the military and political leaders have developed a philosophical school of geography called geopolitics. The theories developed by this cabal have certainly been a strong contributory factor in the aggressions by Germany, Italy, and Japan. This pseudo-science of "Geopolitics" is described in an article by Dr. H. F. Raup of the Eastern Washington College of Education.

Every citizen is now interested in maps and descriptions of remote and little known places that have suddenly become of strategic importance. Such names as: Guadalcanal, Kiska, Bizerte, Oran, Tobruch, Attu, Bataan, Corregidor, Wake, Guam, and Canton Island, were unfamiliar to most people before our entrance into World War II. Now headlines and maps in the newspapers about the Solomon Islands, Port Moresby, Owen Stanley Range, Coral Sea, Port Darwin, Dutch Harbor, Casablanca and Tunisia make these and other locations familiar to us all. The importance of maps in a world at war is discussed by Dr. W. W. Ristow, curator of the map division of the New York Public Library.

The exigencies of war supply have resulted in important new transportation routes. Among these required constructions are the Burma Road and the Alaska Road. Also new railroads are planned for construction in Alaska. Airplanes are delivered to battlefronts by being flown to England, to Egypt via South America and the Sudan, to Australia and even to India and

China. Officers, technicians, representatives, commissioners, and other governmental officials travel rapidly and in relative safety by air to their destinations. In emergencies even thousands of troops and their equipment have been delivered quickly by air. The war has caused a shrinkage in time and the apparent world distances.

In this Geography number of "Education" three foreign countries of special importance and interest are the subjects of contributions. The Japanese House is the subject of the paper by Dr. Frances M. Earle of the University of Washington, and Australia that of Dr. C. M. Zierer of the University of California at Los Angeles. Both professors Earle and Zierer have traveled extensively and have spent much time in research in the countries they describe. Australia is a man base for Allied operations against our Pacific enemy Japan and the articles by specialists on each country will be profitable reading for all. Of the few neutral countries left in the world, Switzerland is of interest as it is the only one of importance entirely surrounded by Axis powers or territory occupied by their armies. Even Sweden has little trade by sea to the Americas. Switzerland is described sympathetically by a former resident of that country, Dr. John E. Kesseli of the University of California in his paper, "Switzerland Remains Neutral," that can be studied with interest and profit by all interested in international and domestic affairs.

Remarkable changes in trade and industries have come both in our own country and abroad as a result of the occupation of many lands by the aggressor nations and the necessities for preparedness programs. Hundreds of airports, training camps, munition works, shipyards, airplane factories, and processing plants for making aluminum, magnesium, special steels, and so forth have been constructed in the United States. Our automobile plants have turned to making tanks, and the manufacture of most commodities is limited so that the mills and factories can turn out required quantities of war materials for our own forces and those allied with us. Our usual sources of such common raw materials as rubber, tin, jute, coconut oil, and silk are no longer available. Even coffee and sugar are rationed. Our needs have caused the construction of huge new plants for making synthetic rubber and substitutes for silk and other things that were formerly imported. It is unlikely that such plants will be abandoned when peace comes. Rather some of the dislocations of industry caused by the war will result in permanent changes in location. Certainly the United States will never hereafter be contented to import all of our rubber requirements. Just as one result of World War I was the development of the dye industry and great expansion of chemical manufacturing in general, so synthetic rubber is sure to remain as a permanent industry in the United States. Even within the boundaries of the United States great changes have occured. Attracted by the power available from Grand Coulee, Bonneville, and Boulder dams and the market afforded by aircraft production in Seattle and southern California, several large aluminum and magnesium plants have been built from government funds in the Far West. These new plants will produce nearly double

the output of all existing plants in the United States in 1942 that made light metals in that year. These plants and many others that have been started in the Far West and South are expected to operate permanently and likely are the forerunners of industrial development in this region that is not generally welcomed to older industrial regions like New England and the Mid-West. However, even in these older developed regions there has been much new plant construction that will continue to operate after the war. In this geography number of "Education," Dr. J. Allen Tower of Birmingham Southern College describes "The South: An Old and New Frontier" and Dr. Reul B. Frost of Oberlin College discusses some geographic problems in the Lower Great Lakes Area.

A great deal of interest has been aroused in the orderly development and conservation of natural resources of the United States. The Pacific Northwest is among the sections of the country which possesses many undeveloped and partially developed resources which are of high importance to the Preparedness Program. Dr. John B. Appleton of the Northwest Regional Council describes, "New Media for Promoting Effective Resource Management," which will be of special interest to educators and others interested in practical school work.

"Perhaps one of the educational changes we will see resulting from the present war....will be the introduction of geography for all high school pupils in order to overcome the 'geographical illiteracy' and the 'psychological isolation' made evident by the bombing of Pearl Harbor and its sequence." — CARL S. MEYER — *in an article, "Geography for the Junior Colleges" in the "Journal of Geography," Sept. 1942 p. 225.*

GEOPOLITICS

By H. F. RAUP
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THE techniques used by German leaders in their effort to expand the power of their nation are of mounting significance to American educators. The members of the teaching profession should be aware of the background pattern of Hitler's foreign policies. In that pattern, a dominant thread is supplied by geography in the form of German "geopolitics," which motivated the German machine by incessant propaganda and advice on Germany's chances of political and military success and defeat. Geopolitics is such a potent force in Germany at present that it is possble that it may become a spiritual theme, more difficult to supplant than the motives which now inspire the German people.

In the United States there is no movement to correspond to geopolitics. American geographers have assisted the government in some projects, notably the Tennessee Valley Authority and its work. A trained corps of geographers is surveying the possibilities of the Columbia Basin Project. Another group has investigated excessive soil erosion on Indian reservations of the West; other groups are at work on long-time weather forecasting at Massachusetts Institute of Technology. These are constructive and beneficial uses of geography, serving the government and the people. But in Germany the subject has been debased, and it has become a political weapon under the control of the dictatorship; in America we have no parallel degradation of academic discipline.

When Hitler came into power in 1933, the German universities and their teaching and research staffs were in an unfortunate position. Those who continued to teach in higher institutions were forced to fit their pedagogy into the Nazi ideological scheme. The entire university system was subject to the dictates of the states, with attention directed toward indoctrination instead of academic research or competent teaching. Results were immediate, and the universities became impotent. For years to come, German published research and German scholars, especially in the social sciences, will be suspect.

The principal German exponent of geopolitics, Dr. Karl Haushofer, interprets the subject as 'political life forms in their earth relationship, conditioned by historical development." The thought may be expressed otherwise: geopolitics is the study of conditions of circumstances of life within a political state, and the relation of those circumstances to their space on the earth. The emphasis thus is placed on the concept of space, and the view is held that the development of a nation is due, not to accidental political or historical factors, but to natural resources, raw materials, and opportunities for expansion. In other words,

foreign policy does not determine the history of a country, but the land itself determines the foreign policy and hence the history. Advocates of geopolitical theory claim that this is a dynamic treatment of the subject, while "political geography" merely recounts the relationships of national states to their physical geography, and is static.

The background of geopolitical theory is complex, but evidently there were two main streams of thought which fed it. The first originated with Friedrich List, a professor of political science who visited this country about 1825 and became familiar with the principles of the Monroe Doctrine. He returned to Germany to serve his government, and to publish "The National System of Political Economy" in 1841. He proposed therein that Germany seek an enlarged space for her future well-being; such an area should extend from the North and Baltic seas to the Black Sea and the Adriatic. List was not responsible for the German concept of the need for greater *Lebensraum,* though that convenient term was not used in Germany until 1900.

The second source of thought in connection with the subject evidently sprang from some of the undeveloped ideas or statements of Friedrich Ratzel, whose early writings stimulated the study of geography in the United States. His special contribution to the theory of geopolitics was the emphasis upon the importance of space. He believed that a nation's attitude toward space is indicative of its capacity for survival; that in order to survive, its people must be conscious of their relations to space, handling their national economy, politics, and other activities with regard to the land which they occupy or control. Ratzel's use of the word "survival" referred of course, to political survival.

A brief application of Ratzel's view with reference to the United States, is interesting. The early settlers of this nation certainly were conscious of our geographical space. Land grants and colonial boundaries were exceptionally liberal in their provisions for extension into as unknown western wilderness. Even the traditional provincials, the residents of New England, joined that great movement to the west, animated by the spirit of Manifest Destiny. But today we endure jokes about the Bostonian who sets out on a western tour to the Hudson. If this is an indication of increasing provinciality in New England, it suggests a possible threat to our national existence, according to Ratzel. There are parts of the southern states where the people are unaware of America's space. However, recent movements from the Dust Bowl suggest a healthy appreciation of the opportunities which the Far West affords.

Returning to Europe, in England the writings of Halford J. Mackinder followed those of Ratzel. The former was convinced that the essential reason for conflict between nations was the alternating dominance of land power and sea power, and that the oceanic or continental position of a nation determined its principal interests, military moves, and political complexion. He was particularly interested in noting the sharpest contrasts between sea and land areas. The largest land mass on the face of the earth is the combination of Asia, Europe, and Africa. Except for certain bodies of water, these continents are essentially a single land

unit, and Mackinder described their core area of central Asia as a "pivot area" or "heart-land." This, he believed, is a highly strategic space, almost land bound, containing within itself all the advantages which Germany must have in any way against other powers. If Germany could occupy or dominate the heart-land, she could be supreme among nations of the world. It will be noted here that Mackinder's conception of the causes of war was primarily economic, based upon the control of land and resources; thus the whole underlying philosophy of geopolitics was and is essentially economic.

Germany's hopes of controlling the heart-land were thwarted in 1919 by the establishment of many small states set up as buffers between Germany and Russia. These states were almost certainly created as a direct result of Mackinder's recommendations in his "Democratic Ideals and Reality," published at the opportune moment in 1919, and transmitted to the geographers in the United States by Dr. Frederick J. Teggart.

Mackinder believed that "danger to the peace of Europe lay in German domination of Russia and the East." He was in a position to make acute observations on wartime conditions, since he served as director of the London School of Economics and was a member of Parliament In his opinion, history, tied to the study of nations and states within narrow time compartments, was not in a position to assist statesmen. Geography, unhampered by tradition, with its affiliations with geology, anthropology and economics, and by the "force of its materials, was committed to a world outlook." And it was the world outlook, or *Weltanschauung* which could make the provisions of the Treaty of Versailles function against further aggressive actions of Germany. In particular the world outlook could protect England against disastrous outbreaks of war. Mackinder therefore believed England's best interest lay in separation of Germany and Russia, and to that deliberate end the shatterbelt buffer states of Esthonia, Latvia, Lithuania, Poland, Czecho-slovakia, Hungary, Austria and Rumania were created or enlarged.

Mackinder's "world-island" of Asia, Europe and Africa is not a true island, for it is ice-bound on the north and cannot be circum-navigated with any safety. Around the fringes of the world island, Mackinder placed an inner or marginal crescent of land, to include northwestern Europe, the Near East, Arabia, India, and the Far East. His lands of the outer or insular crescent included North and South America, most of Africa, the East Indies, and Australia. By implication, the important areas are Siberia, the Caspian lands, European Russia, and Scandinavia, and it is this land which Mackinder called the pivot area.

Where the pivot area is exposed, there are contacts with other parts of the world and civilization thereby is advanced, though subject to constant threat of aggression; where the pivot area is inaccessible from the sea, there is backwardness but safety from military raids. To support this idea it should be noted that the great migrations of prehistoric and historic times have originated within the heart-land, and that repeatedly it has produced waves of half-savage men who overflowed its boundaries to enter the lands of the marginal crescent, there to pill-

age and introduce new ideas and new blood. Always, these movements have been centrifugal. It remains to be seen whether the centripetal attack now in progress under the direction of Germany and Japan will succeed in penetrating the heart-land.

If the pivot area is of prime importance, a brief glance at its geography is in order. It is, as previously noted, invulnerable from the sea along its northern boundary because of weather and ice. From the west, it can be approached through rich but densely populated country. The only approach from the southwest is blocked by the Syrian and Arabian deserts and by the wastes of the Sahara. Southward, Iran is a rugged plateau, poorly served by transportation facilities. On the south and southeast, the mountain wall of the Himalayas, the plateau of Tibet, and the arid basin of the Tarim repel invasion or armies or ideas. All the navies in the world can make no impression upon the people who dominate this heart-land; can modern armadas conquer it from the air?

Mackinder's theories were known to the German geographers, but where he advocated the separation of Russia and Germany and the exclusion of Germany from the heart-land, the Germans reversed the concept and proposed an alliance with Russia, by voluntary or involuntary methods, in order to give Germany access to the resources and protection of the pivot area, and to make her a mammoth land power to offset the might of British seapower.

As previously noted, the principal German protagonist of the significance of the pivot area was Karl Haushofer. He was born in Munich in 1869 and was reared almost in the German army, serving in Japan from 1909 to 1912. There he instructed Japanese army staff members in German army tactics. He became convinced of the strategic position of Japan and of the advantages of a German-Japanese alliance. He returned to Munich to take the chair of geography and military science at the university. One of his students, Rudolph Hess, was responsible for making Hitler acquainted with Haushofer's geopolitics. Through this contact, Nazi ambitions and accomplishments were profoundly affected by Haushofer's research and opinions, although the extent of his direct influence upon the actions of Adolph Hitler is but obscurely known.

The connection between Haushofer and Hess was close; the former even dedicated some of his printed works to Hess. Haushofer visited Hitler during his stay in prison, and a footnote on page 937 of the unabridged "Mein Kampf" indicates that Haushofer was responsible for some of the ideas presented by Hitler in Chapter XIV of that volume. When Hitler came into power in Germany, he appointed Haushofer to the presidency of the German Academy and supplied plenty of money for its work. Furthermore, he decreed that Haushofer's sons and his par-Jewish wife were of Aryan descent, whatever significance that gesture may have had.

Haushofer's prolific writings are well known to German geographers and political scientists. He has crusaded for his own particular version of Ratzel's views, and has had funds with which to print and distribute them among German scholars and the public. In addition to numerous books and his periodical *Zeitschrift für Geopolitik,* he uses the Geopolitical Institute of Munich as an instrument

to disseminate his views. Among others, he emphasizes the political importance of radio. He has published many an article dealing with the internal and external problems of Japan, China, Russia, and India. He makes exceptionally effective use of maps, drawing them to show any desired conclusions to illustrate his points.

There are several cardinal principles upon which German geopolitics is based. According to one author, much of the success of Hitler's moves was due to the great amount of information obtained for him by Haushofer's agents working through the institute at Munich. Probably the collection of this material was similar to that gathered by geographers and economists in the course of routine research, but in Germany, it was not filed away. It was made available for use by any qualified government official who might have need of it for espionage, planning military operations, fomenting revolt, or other war activities. Haushofer's agents probably gathered data on a larger scale than is usually the case, since it was designed to serve many branches of the government.

One of the principal tenets of the geopolitical doctrine is that much can be accomplished by persistent use of propaganda, and this policy has been pursued with care by the German leaders. However, a modern German writer, Oswald Spengler, believes that too much propaganda delivered by government agencies has a tendency to produce resignation and apathy among the people. If that is the case, Mr. H. K. Weigert, writing in the November, 1941 issue of Harpers Magazine believes the limit of government propaganda has been reached in Germany, and that there are evidences of growing boredom on the part of the German people. When this condition reaches its highest pitch, it may be the decisive weapon whereby the Germans will overthrow Hitler and his regime. Another important tenet of the Munich Institute and its director evidently is the belief that Germany must dominate as much of the heart-land as possible, and must also keep in touch with her numerous emigrants. Studies of the Germans as frontier settlers, with their successes and failures in that capacity, constitute an important item of study for German geographers.

Haushofer has not expressed his opinion concerning Germany's most satisfactory method of dominating Europe or Asia. Three possibilities suggest themselves: through colonization, by amalgamation either voluntary or involuntary, and by military conquest. Of the three, the first is the most unreliable, because there can be no assurance that German colonists will remain loyal to the mother country for any length of time; indeed, if experience is any measure, the German *Ausländer* acquires new allegiances in a very short time. The second proposal, domination by amalgamation or union, we have witnessed, but there is much doubt that Hitler has succeeded in forcing unwilling subject peoples to work under his direction. The attempt at voluntary collaboration with Russia in 1939 must have been gratifying to Haushofer and his disciples at the Geopolitical Institute, since they favor a move to the eastward into the heart-land at any cost. The subsequent reversals in Russia in 1941 must have been equally disheartening, and it is more than likely that Hitler made the Russian attack with-

out the approval of Haushofer. Whether the partial collapse of the drive into Russia was due to Germany's inadequate information concerning Russia's military strength (and this would reflect on the efficiency of the researchers in Munich,) or whether it was done against the advice of Haushofer, is not known. One thing is certain: if Mackinder's and Haushofer's views of the importance of the Russian and Siberian heart-land are correct, the outcome of the present conflict between Russia and Germany is of acute importance to the whole world.

Haushofer is convinced that it is impossible for Germany to dominate the heart-land without a complete and decisive defeat of Russian armies and the Russian people. He believes it is impossible to conquer a nation which can retreat into space without offering battle. The importance of space in the military sense is thoroughly understood by German military staff members, who have "always been aware of the alternative either of achieving the complete destruction of the Russian war machine, or, despite a string of victories, of eventually losing the war." (H. K. Weigert, German Geopolitics, in Harpers Magazine 183: 586-597, November, 1941; quotation on p. 592.)

The geopoliticians in Germany believe that the days of the British Empire's glory are ended, because the balance of power must necessarily shift from the control of the sea to the control of the land, and that any nation ensconced within the heart-land will never suffer attack by Britain's navy. This emphasis upon the distinction between oceanic and continental powers is, of course, directly traceable to Ratzel's views. Haushofer is also convinced of the necessity of using the pan-idea, as opposed to the universalism which prevailed in Europe in 1919. He thinks in terms of three pan-areas: Pan-America, dominated by the United States; Pan-Asia, dominated by Japan, and Pan-European Asia, dominated by Germany and Italy, with the latter nation in charge of Mediterranean affairs and the former taking over the remainder of Europe and central Asia. The remnants of the collapsed British Empire will find their eventual place as they come within the orbits of the three pan-areas. There is further belief that this redistribution of lands can be brought about only through the action of the dynamic "renovating powers" of Germany, Japan, and the United States, in opposition to the reactionary attitudes of the "resisting powers" of China, Great Britain, and Russia. In Haushofer's eyes, our alliance with British interests is opposed to our own interests, since he believes that we possess all the geographical and geopolitical requisites for attaining world power without Britain's help. England, he thinks, has moved far outside the logical sphere which she can control by sea power, and she will experience automatic defeat in her attempt to keep her empire together.

German geopolitical thought has not concerned itself greatly with ideas of a world conquest by Germany, in spite of recurring accounts of German plans in that direction. Articles published by the Institute generally ignore the problems of the western hemisphere and of the United States. Haushofer does not underestimate the position and influence of this country, but since he has ignored us in his writings, he has helped give misconceptions of Am-

erica to the German people. He believes we should avoid any attempt at world conquest in our own right, since we will eventually struggle for fragments of the British, Dutch and French empires against the ambitions of Japan.

Most of the preceding paragraphs have been divorced from any consideration of the relationship of German ideas as they are expressed in geopolitical theory, and possible duplication in the United States. Here, the study of political geography has advanced very slowly; only within the last two years have we had some material on the subject appearing in textbooks at the college level. Haushofer's volume, "Grenzen," published in 1927, dealt with the problems of political boundaries. The first book which paralleled the subject, written by an American, S. Whittemore Boggs, did not appear until 1941. In the entire field, the Germans are far ahead of us, though there is a growing realization of the importance of the subject as we become more deeply involved in a world philosophy and abandon our isolationist views.

If democracy is inspired by ideas and not ruled by force, as Teggart maintains; if it aspires to enable every individual to live a full and self-respecting life, it is opposed to the concept of geopolitics as expressed by Haushofer, who looks upon his pet subject as a revolutionary doctrine having a simple appeal, caring nothing "for the individuals relation to his physical environment — his strip of land, his valley, or his patch on the edge of the sea." If "the state is the sole monstrous individual of geopolitics," then geopolitics is the direct antithesis of Ratzel's view of geography, which had to do with the relationship of the individual to his environment. And in the final analysis, Haushofer has warped the subject to conform to his views and Nazi ideology, placing geopolitics in direct opposition to its parent subject, geography.

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MAPS *in* WAR TIME

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SUPPOSE you have just accepted a job to work on a new army base or road in Iran. Naturally you are interested in knowing just where you are going and something about the geography and climate of the region. A convenient place to get such information is the Map Division of the New York Public Library. Such requests have become routine to the librarians, who almost daily enlighten workmen about such widely scattered places as the Middle East, Alaska, Hawaii, Eritrea, Brazil, or Iceland.

The meager information which many of these men have about their destinations is sometimes quite astonishing. Imagine if you can, the surprise of one such laborer, who had signed for work on a base in Jamaica, when he learned that his job was not in Jamaica, Long Island, but in Jamaica, British West Indies.

Soldiers and sailors on leave visit the Map Division to study plans of New York City for guidance in sightseeing, or utilize maps to point out to their "girl friends" the location of their camp or base. Proud parents also call to see on a map the camp where their soldier son is stationed.

Several requests a week are received from anxious fathers and mothers concerning the location of "Sans Source" or "Sans Origine," names written or postmarked on letters received from sons serving over seas. It always proves to be a great disappointment when they learn that these are not geographical names, but are used when censorship forbids giving the place of origin.

The importance of geographical knowledge in military science is recognized by the public today, and many requests are received for simple books on map reading and interpretation. Such calls come from young men who are applying for army and navy commissions, individuals seeking positions as draftsmen or cartographers in some governmental office, or housewives who desire only to understand better the maps appearing regularly in newspapers and magazines. Quite often requests are received as to where one can apply for a government or civil cartographic position.

Recently the attendant received a telephone request from a young lady who was about to take an examination for admission to the WAVES. She had to know the number of her Congressional District, and called the Library as a last resort before wiring to her home in California for the information.

Requests for routine map information, not related to the war effort, are still received in the Map Division, although they are less frequent than in the pre-war period. Real estate men

continue to have recourse to the land and property atlases of New York City, and around registration and election time the voting district maps are in great demand. What with gasoline and tire rationing, and less spare time for driving, automobile road maps and guide books are almost completely neglected. With "tourism" out "for the duration," oil companies have stopped distributing free road maps, and such map making establishments and personel have been largely converted to war map production.

Some few persons, seeking escape from current realities perhaps, still study old maps to correlate some event in the life of an illustrious or beloved ancestor. In a similar vein, was the request of a gray-haired gentleman for a map showing the Indian trails described in Cooper's "Last of the Mohicans." Also verging on "escapism" were the request of a sailor on furlough for directions to Ebbett's Field, Brooklyn (home field of the Dodgers,) and of the telephone inquirer, during the World Series, asking for the difference in time between New York and St. Louis.

Soldiers at army camps are becoming more world conscious and occasionally their "bull sessions" yield puzzling geographical questions. Faced with such problems, men in uniform sometimes recall the resources of the New York Public Library for answering such questions. Such a request came not long ago from a soldier at a Camp in Oklahoma. "We wish to settle an argument," he wrote, "about the actual distance to the horizon in any direction at sea level, or how far a ship would be visible before disappearing below the horizon."

An increasing geographic curiosity among the uneducated masses is reflected in some of the less serious questions. Thus, the old queries, "How many continents are there?" or "What are the names of the Seven Seas?" have been revived, and the Map Division is at times called upon to settle an argument or wager involving these age old and unanswerable questions. At such times the librarian must use all his tact and patience in attempting to explain to some unlettered persons that there is no "official" answer to such questions.

The emphasis on maps today has resulted in a renewed interest in their use as wall decorations. Individuals frequently seek advice on sources for attractive and useful maps, and on proper methods of mounting and framing. One lady, with patriotic zeal, telephoned to ask if, in displaying maps of the World and the United States, there were any rules governing the relative positions of such maps. An architect visited the Library one day to get a reproduction of the western hemisphere on the orthographic projection. He wished to use it as the basis for planning a floor design in an airport building in Panama.

The current interest in things cartographical is also seen in the increasing number of advertisements which now use maps in their displays. Agencies work out many such ideas from maps examined and copied at the Library.

Many miscellaneous requests, directly or indirectly related to world conditions, are received from a variety of sources. One caller may wish to know the area of Stalingrad, another asked for an up-to-date list of all the United Nations, a third desires the airline distance between Tokyo and San Fran-

cisco, and yet another asks how near Eritea is to the equator. An elderly man studied detailed maps one day in developing what he claimed was a new and practical idea for utilizing Passamaquoddy power. The question of the correct spelling of *Guadalcanal* caused a slight flurry for several days when that small island became headline news. Most newspaper editors adopted the spelling with a final "l" as found on the United States Hydrographic Office charts, although foreign sources, for the most part, end the name with an "r."

Before America's entry in the war, the Map Division was asked to help solve a very difficult legal problem. A large shipping company had guaranteed bonus payments to crew members if they sailed to the "Far East." The journey ended in India, and the question arose as to whether this was "Far East." The crew, of course, maintained that it was, while the company dissented. The Map Division rendered no decision.

Civilian defense problems often require maps, and a number of division and area chiefs have used the Library atlases and maps to draw up detailed plans of blocks and buildings in their sectors.

Naturally the Library Map Division is of invaluable aid to the many governmental offices now established in New York, as well as to many in Washington. Obviously, the exact nature of most of these requests cannot be disclosed, but some of a more general and less confidential character may serve as examples. Thus, agencies engaged in recording foreign language radio broadcasts frequently call to locate or establish correct spellings of names mentioned in dispatches. One civilian employee of a government bureau conducted a brief survey of Map Division sources in an attempt to establish the origin of the Military Grid system used on maps.

Many detailed maps of various countries have been loaned by the Library for special war projects. The Corps of Engineers, the Intelligences branches of the Army and Navy, the Board of Economic Warfare, the Offices of Strategic Services, and the Army Map Service, are among the agencies which have been thus served. As one might expect, the official requests for maps are world-wide in scope, and many maps which have rested idly in files for years, as well as more recent acquisitions, are now called into use, and frequently play important rôles in strategic planning.

A number of requests have been received also from official and semi-official agencies of other of the United Nations. Cut off from their regular channels of information, such exiled organizations find the Library resources indispensible in answering many questions.

Maps now appear in virtually every newspaper and magazine, and source material for many of these is obtained in the Library Map Division. Thus an article about maps in a national illustrated magazine included reproductions of several maps from this collection. A general article about the Library in a widely circulated weekly, with mention of the Map Division brought a number of readers who had never before known of the existence of such a map information center. Many magazine editors check with the Map Division on spellings of place names, or for verification of certain geographi-

cal items mentioned in stories or articles.

Most of the larger newspaper and magazine publishers, and the news syndicates now maintain their own cartographic research departments, but at times they also avail themselves of the Library materials. Representatives of magazines, which have an international circulation, call at times to ascertain the exact status of territories within their distribution system.

The "global" idea of war has led to a renewed interest in maps drawn on the orthographic projection. Authors and publishers of several recent books have borrowed such map ideas from library maps and atlases.

Several radio commentators regularly call the Map Division to check on pronunciation of place names, or to verify other geographical data. Interesting geographical facts are currently popular on quiz broadcasts, and such items are frequently obtained or checked at the Library.

Because of the up-to-date maps of the war areas which are published in the newspapers, relatively few calls are received for current battle front information. However the Map Division maintains an exhibit case where maps of current interest are displayed. It has proved to be very popular and helpful to the thousands of people who daily visit the Library. Contrary to popular belief, the uncertainty of boundaries has not affected greatly the use of atlases, and dozens of times each day the attendants and readers have occasion to use these valuable reference sources. Good atlases, well indexed, still constitute the backbone of a well equipped map and geographical reference library.

The above summary will perhaps serve to illustrate the great variety of geographical and cartographical problems which face our government and citizens today. Institutions such as the New York Public Library are doing their small part in making such information available. They can, however, at best reach only a very small per cent of the American public. All geographers should therefore recognize the duty and opportunity which lies before them and attempt to reach beyond their classrooms, to satisfy the current hunger and desire for geographical information.

Upon being introduced to new friends as a geographer and cartographer I am invariably greeted with some remark about the difficulties map makers and map students must have in these days of fluctuating boundaries. Such casual observations are typical of the vague conception the great majority of the people have about the function of geography and maps. Correction of such "geographical illiteracy" of the American public should be one of the fundamental aims of geographers during the war and in years to follow. Isolationism is dead as an American issue. Americans with the "global" viewpoint are needed, and geographers can play an important part in developing this new international state of mind.

THE JAPANESE HOUSE

By FRANCES M. EARLE
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ONE of the richest and most colorful fields of study in human geography is habitation. Shelter of some kind is absolutely fundamental to man's scheme of life, and a houseless human being is virtually unknown. Broadly speaking, more than 99.9 per cent of the world's two billion people spend from eight to twenty-four hours of every day within some type of house, and the urge to procure, equip and maintain a habitation is universal.

Habitation and Environment

The widely differing environmental conditions under which houses are found throughout the world afford ample scope for geographic analysis. Climate affects most of man's socio-economic activities and is a prime habitation control; many variations in types of houses can be linked either directly or indirectly to heat, cold, humidity, winds, goods, or other persistent weather phenomena. Relief is also of high significance and a valuable study might be made of the characteristics of mountain houses in the Alps, the Himalayas, the Andes, and other highlands. Building material available locally, abundance or scarcity of water and fuel, underlying foundation material of hard rock or shifting alluviums also play their part. Man's occupation itself, his economic or cultural status, his need for defense, for large or small storage space, for easy mobility, has its effect on the size, arrangement, appearance, location and degree of permanence of his dwelling. When there is added the element of migration with its resultant culture transfer, it is obvious that the criteria for regional interpretation are singularly rich and varied. Indeed the late Jean Brunhes, one of the few geographers who has expressed a philosophy of habitation, said, "Of all the phenomena involved in the satisfaction of essential human needs, the habitation is to the highest degree geographical."

Well Known Relationships

Among the more obvious environmental relationships is the nomad's tent in the desert and the numerous reasons for its use. The cleverly constructed ice-block igloo, locally adjusted to polar cold and barrenness, and the lightly built humid tropical hut which sheds rain and permits easy air circulation, are both well understood. These three housing adjustments, however, are practically the only ones which have achieved general recognition. This is the more surprising since within the middle latitudes where climate is less rigorous than in polar zone or tropical desert, and where materials multiply in quantity and increase in excellence, habitation becomes far richer and more diverse. Certainly there has been but slight attempt to analyze housing in the more habitable portions of the world, such as the United States, Europe, and eastern Asia.

The Japanese Environment

With their great latitudinal extent from Taiwan, on the Tropic of Cancer, to Karafuto, on the 50th parallel, the main islands of Japan provide an excellent background for house study. Taiwan might be regarded as definitely tropical and somewhat similar in latitude and climate to Cuba. Old Japan —Honshu, Shikoku, and Kyushu—is humid subtropical, with the exception of northern Honshu. That area together with Hokkaido is generally compared climatically to our Middle Atlantic Coast and New England. Karafuto duplicates Newfoundland's climate The two northernmost islands have a timber and fishing economy, an agriculture based on the hardier cereals, root crops and pastures, and are sparsely populated frontier lands. Most of Japan has a high percentage of rugged and mountainous interior, flanked by small but densely populated lowlands.

Even a cursory survey of housing and house types throughout the islands brings out the fact that it is Old Japan, with its summer monsoon rainfall, high humidity, flooded lowland plains, and basic rice paddy economy, which has set the dominant house pattern for the country as a whole.

Tropical Origin

According to certain Oriental scholars, the house type most widely used in Japan originated in the equatorial Pacific Islands and has since been gradually adapted to a sub-tropical setting. The steep thatched roof, the openness of the house, and its foundation of stilts all suggest its tropical origin. In the equatorial region many coastal dwellings are raised high on stilts to avoid the tides as well as seasonal floods in the swollen rivers. In Japan the stilt foundation has decreased in height and often remains only as a vestige. In parts of the southern islands, however, where torrential monsoon rains frequently inundate the lowlands, stilts of considerable height still serve a useful purpose.

Since rice lands are flooded several months and water-soaked most of the year, the house is of necessity raised well off the ground to avoid undue dampness. There is neither cellar nor attic, surplus goods and treasured possessions being kept in a separate "godown" or storehouse above ground. Overhanging eaves provide a shelter under which grain or vegetables may be hung to dry. This transplanted tropical house with Japanese adaptations has thus furnished the pattern for houses in general, whether located on lowlands, at the base of hills, on steep hillsides, or even in town. While they avoid absolute uniformity, all Japanese houses tend to follow this recognized type.

Economy and Simplicity

The average house manages to achieve much of the stark simplicity which we associate with pioneer life. Economy in materials has been carried to a point unknown even to the thrifty Scotch. Framing is of pine or fir, wall panels and window panes are made of paper, and straw matting on the floor with a minimum of wood underneath makes an effective substitute for more costly rugs or carpets. Charcoal braziers take the place of stoves. The house has neither chimney, fireplace, nor flue—another economy in construction— and is built with little or no glass, paint, plumbing fixtures, door knobs or other builder's hardware.

The kitchen is small and extremely limited in equipment, with cooking done over an open charcoal fire. A constant procession of food vendors and delivery boys makes it unnecessary to provide large storage spaces, especially in town. The bath consists of a barrel-shaped wooden tub, some three feet deep, sometimes with a small charcoal fire-box set into one side of it. Well-to-do families may have a room for the bath tub but often it is used in a passage way or even in the open courtyard.

Inexpensive materials, light construction and meagre furnishings also have their advantages in the face of three natural hazards common to Japan: earthquakes, floods, and typhoons.

Use Sequence

It is in the functional sequence of room use, however, that the Japanese house reaches its highest efficiency. It is true that the prosperous minority often have houses with large floor space divided into many rooms, but for the majority of the people with very modest incomes a system of living has been evolved by which the maximum use of space is achieved.

Conventional thinking in America calls for many separate rooms—bedrooms for sleeping, dining rooms for eating, and other rooms for daily living and entertaining In the average Japanese house with furniture and fixtures reduced to the lowest common denominator, it is possible to vary uses as needed so that one room may, in rotation, serve several purposes. Since man usually performs only one activity at a time, the thrifty Japanese ask: "Why possess three rooms, two of them continually idle while one only is in use? Why not play the drama of daily living on a single stage, shifting the scenery from human act to human act as needed?"

Even the change in scenery may be simple. Accordingly, a single attractive living room with spotless floor mats of conventional design and size has practically no furniture, floor cushions being substituted for chairs. At the meal hour trays which have been elaborated into miniature tables, light, practical, efficient, and set with individual food containers, are brought in and placed on the floor before each person. When the trays have been removed to the kitchen after the meal, the room is again a sitting room. At the retiring hour when pads or mattresses are drawn out of cupboards, laid on the floor, and the bedding arranged, the sitting room becomes a sleeping room.

This use sequence avoids a heavy overhead cost of unused space and an equally heavy investment in furniture and equipment, idle during a large part of the twenty-four hour day. In many Japanese houses, as in those of small craftsmen, the same room which is successively sleeping, dining, and living room may also become a workshop during ten or more hours of the day. In the larger dwellings sliding panel walls enable the owner to throw several small rooms into a large one and thus attain still greater flexibility at slight extra cost.

Winter in Old Japan

Throughout the middle latitudes house are generally designed to provide comfortable living in winter as well as in summer. With good construction and adequate heating facilities rooms may be kept warm during the coldest weather. But in Japan when winter

brings cold days, cold winds and snow, the tropical house with its paper covered walls and matting floors calls for plenty of fortitude. Hardships are increased in northern Honshu and in the mountains where winter is longer and more severe.

Both wood and charcoal are expensive and little attempt is made to actually heat the interior of a Japanese house. The common method is to ignore the room temperature and concentrate upon warming the individual. This is managed by various economical devices such as wearing several kimono (some of them padded,) by taking frequent hot baths and drinking many cups of steaming tea. Charcoal must be used sparingly and an entire family may sit, work and warm themselves under a quilt thrown over a large brazier. Small braziers are used for warming the hands and still smaller hand-warmers are made to carry in the pockets or kimono sleeves.

A Japanese teacher of my acquaintance remarked that the early morning rush of children to school in winter and their reluctance to leave at night, was not entirely motivated by love of learning. Part of it was because of the contrast between frigid homes and somewhat warmer clasrooms. "Our philosophy", said he, "is to endure the discomforts of winter, while anticipating the fullest enjoyment of the summer to come." Even so, Japanese housing is certainly unsatisfactory in winter, according to western standards.

The Pioneer Northland

Hokkaido, with its cool summers and snowbound winters, was first colonized some seventy years ago. And the southern house which inevitably went north with the pioneers was in winter even more uncomfortable than in the South.

American engineers and agricultural advisers who helped lay out the capital city of Sapporo did their best to introduce warmer construction, chimneys, and suitable heating. Wood was plentiful and cheap, both for lumber and for winter fuel. But the southern type house persisted; however, paper walls and windows gradually gave way to glass, thatch was replaced by wooden or composition roofing, and small stoves became regular equipment. Today Hokkaido has many well constructed dwellings reasonably adapted to winter cold, some which are thin and flimsy, and others which are hybrids—a compromise between climatic necessity and age-old tradition. Outside sliding paper windows have practically disappeared, but permanent chimneys are still rare. The average Hokkaido house with its flimsy length of tiny stovepipe sticking out through a window pane, is still a cultural and functional misfit.

In Karafuto where there is a chill and foggy summer, temperatures 20 to 30 degrees below zero are common in the interior during the long winter and the coasts are ice bound. Here the use of heating stoves in thick walled houses is normal for farmers, fishermen, and pulpmill workers. In summer great stacks of wood, sometimes extending up under the eaves, are piled around the cottages within easy winter reach. To the American, however, the tiny drum stoves with their small pipes projecting through the window seem painfully inadequate. This is a climate for big stoves and big chimneys.

The adoption of some ideas from early American advisors has already

been mentioned but the northern house still needs improvement. There is little to be learned from the Ainu who have inhabited Hokkaido for several centuries. Their characteristic windowless houses have clay fireplaces, it is true, but any hard winter gale along the Hidaka coast forces cold air through the walls made of tightly bound reeds. The Gilliak and Orokko tribesmen who range the Horonai Basin of Karafuto use log huts in winter but these are inferior even to Japanese houses.

Log houses of the former Russian inhabitants offer perhaps the most practical suggestion for this environment. Japanese experiment station men have already adopted the deeply sunk Russian root cellar and turned it into an inexpensive silo for pioneer dairy farmers. I have also seen a few interesting adaptations by Japanese colonists of the tightly fitted Russian log house with its deep set windows with winter shutters, its substantial chimney, and its double entrance.

Nowhere in the pioneer Northland have the rigors of winter been met as successfully as in Scandinavia or Russia. The Japanese have not as yet recognized that this is a definitely severe environment where more substantial buildings and better heating are required to make settlement easier and development more permanent.

Conclusion

Originally developed to suit the tropics, then slightly re-adapted to fit humid sub-tropical conditions, the predominant house type throughout Japan is now reasonably fixed. Recent western influence as well as modern industrialization have added certain touches, but as yet only slight modifications in type or structure are apparant. Rigid economy in materials is matched by the further saving of rotational sequence in room use. Obviously an old, well schooled and well disciplined society has excluded from its housing requirements all costly non-essentials.

Together with extreme simplicity in design and a general gracefulness in form, most dwellings fit into the environmental background. This blend of natural and cultural landscape is particularly harmonious in the south and along the Inland Sea. With the exception of the far North, still largely in the raw frontier stage, and the climatic discrepancies already noted, Japan has achieved a mature habitational adjustment.

AUSTRALIA---
Base *of* Allied Nations *in* Southwest Pacific

By CLIFFORD M. ZIERER
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AUSTRALIA is the important stronghold of the Allied Nations in the Southwest Pacific. From that base of continental proportions the southward expansion of Japan has been stopped by Australian and American forces. From that base Japanese power will be cut down and in due time its forces will be driven northward, island by island, to the gates of Tokyo itself.

Contact between Australia and the United States is maintained by ship and plane over the wide reaches of the Pacific. Numerous small groups of islands provide essential stepping stones along these supply routes. The safe movement of men and materials over those routes, some 6,500 miles in length, comprises one of the principal aspects of the current Allied offensive in the Pacific. Hawii, Samoa, Fiji, Canton, Tahiti and New Caledonia are the principal island links. New Zealand, of much larger size, also serves as an important base along the supply route between America and Australia.

Before the outbreak of war with Japan most Americans had only a slight interest in the lands of the Southwest Pacific. The dispatch of troops to many places in that section of the globe and numerous military engagements among the island groups have now created an intense interest in the geography of that portion of the Pacific. Australia, New Guinea, the Solomons and New Britain have suddenly become household words throughout the length and breadth of America. A clearer knowledge of those lands and their peoples is one of the important needs of the day, not only in our schools but also among the adult population.

Australia has an area approximately equal to that of the United States. The population, however, is only 7 millions or about one-twentieth that of our own. There is no likelihood of its population ever becoming greater than 15 or 20 millions (if present standards of living are maintained) because of the large proportion of arid and semi-arid lands. While America has a fertile and well-watered agricultural interior supporting great cities and industries, the heart of Australia is at best a region of scattered pastoral activities, and an area of excessive drought and heat. After more than 150 years of occupation most of the interior as well as the north coast region has not even one person per square mile. Most Australians live in a comparatively narrow belt along the southeast coast

between Brisbane and Adelaide and in the far southwest corner near Perth. In those coastal districts rainfall is more abundant and living conditions are especially attractive. Tropical temperatures and the marked seasonality of rainfall along the north coast have combined to prevent successful development of that extensive region.

Nearly two-thirds of all Australians reside in cities and towns, thus making the Commonwealth relatively more urbanized than even the United States. Half the entire population lives in the capital cities of the six states (Tasmania being the sixth state.) One-third of all Australians live in Sydney and Melbourne alone, the two outstanding metropolitan centers. The preponderance of urban population is related especially to the traditional British urban background, the large scale and mechanized character of agricultural industries, and the growing importance of manufacturing industries. The most characteristic Australian is a city dweller, therefore, rather than a farmer or a pastoralist.

Although more than 95 percent of the Australians are of British extraction, no fewer than 86 percent were born in Australia. They are proud of their British heritage but all are "Australians." They are ardent in their feelings towards Australia but they are also devoted members of the British Commonwealth of Nations. Their feelings toward Americans in the past might have been compared with that among cousins who lived in different cities and who rarely saw each other. Close contacts between large numbers of Australians and American troops will further their acquaintanceship. The portrayal of the life and activities of average Americans in our films and magazines would also help to correct many mis-impressions now held by most Australians. American films and magazines are widely enjoyed in Australia.

The environment of Australia, its recent historical development, and its economic life parallel closely the conditions typical of our own West. There is likely to be more real understanding between the average Australian and the average American than between the Australian and the Britisher. The American visitor finds little that is really different in the Australian city and country-side. Thus one may understand why the Yanks and Aussies get along well together.

Life in Australia resembles very closely that which is characteristic in the southwestern United States. Australia's larger cities are not very different from Los Angles and San Francisco. Its smaller inland towns resemble in many ways the agricultural or mining centers of California, New Mexico, Arizona, Nevada and Utah. Landscapes in western Texas and Oklahoma frequently suggest Australian scenes.

Sheep-men, cattlemen, wheat farmers, dairy-men, and specialists in irrigated fruit growing are most numerous among the rural Australians. Stations (ranches) including many square miles rather than acres of interior range land are characteristic. Large bands of sheep move slowly over the plains which are green following rains and dry and yellow in color in times of drought. Smaller holdings cleared of forest growth and planted to introduced grasses are typical of the dairy farms along the moist eastern coastal region. Highly mechanized wheat

growing takes place on the western slopes of the southeastern uplands.

Irrigation communities, closely resembling those of California and other western states, are associated with the Murray River and its larger tributaries. Citrus groves with packing sheds could have been lifted out of the Southern California scene except that the cases of packed fruit would lack the name "Sunkist." Vineyards, deciduous fruit and nut orchards, alfalfa fields and irrigation ditches in Australia remind the visitor of landscapes in many parts of our own Southwest. Indeed, a number of irrigation projects in South Australia and Victoria were organized and established by the same Chaffey brothers who created similar communities in Southern California.

Important elements in the rural Australian landscape are the many types of native eucalyptus trees, some of which are now widely distributed in California valleys. They range in kind from the giant timber trees of the moist southeast and southwest districts to the small brilliant-flowered varieties of the western state. Typical of the interior semi-arid plains is the acacia or mulga which provides great masses of golden bloom as well as feed for sheep in times of severe drought.

Gray-green is the predominant color of the Australian bush (forest or brush land) throughout the year, few species being deciduous. The dark green of the occasional introduced pine and of the citrus groves stands out in striking contrast to the prevailing duller shades of the landscape.

In most of rural Australia small single-story, wooden bungalows are the characteristic dwelling unit. In the drier regions, where timber is scarce, corrugated iron and stone become important building materials. In tropical Australia, wooden bungalows are constructed on posts, about 6 feet above the ground, to improve ventilation and to escape the ravages of wood-consuming insects.

Urban life in Australia is as varied as it is in America. All types of industry, merchandising, transportation and recreation are available. At one time Australia was engaged principally in the production of raw materials for export, depending on England for most kinds of its manufactured goods in return. Now Australian factories produce a sufficient variety of nearly all kinds of manufactures to meet home needs, with a surplus of some things for export. Even complete airplanes and warships are being manufactured in Australia to serve on the fighting fronts.

Australian industry has been almost completely converted to war materials production for several years. The great importance of Australia in the production of foodstuffs and its growing importance in manufacturing have been favorable factors in establishing a major base for military operations there by the Allied Nations.

Homes in urban Australia also reflect in their building materials and design the varying resources of the local regions as well as the characteristic climate conditions experienced in the various states. Brick buildings and homes are most numerous in the crowded portions of the larger cities, and wooden bungalows are typical of many of the newer residential suburbs. Modern conveniences are available in most of the urban homes, although electric refrigerators and similar devices are not as common as in America. The mild climate and British tradition

make domestic heating facilities much less adequate than in American homes.

Year-round growing conditions in nearly all parts of Australia encourage gardening as a form of recreation for many householders. Ornamental tree, shrubs, and flowers contribute notably to the attraction of the Australian dooryard, much as is the case in Southern California.

Many fewer Australians than Americans enjoy the use of an automobile. Higher initial costs of automobiles, as well as higher taxes and fuel costs, discourage their universal ownership. Australian cities are still extending and improving their tram systems while American cities are pulling-up their street car tracks. Australian cities are relatively more compact than are cities in California, in part as a result of the difference in the chief mode of transportation. Nevertheless, the automobile is widely used in Australia, where it has been a factor of greatest importance in overcoming the long distances between farm and market, as well as in providing the transportation needs of the average resident of town and city.

All Australians are extremely fond of outdoor sports and recreation. They live for the week-end and for the summer holiday. The seashore, which is easily accessible to most of them is the greatest center of recreational activities. Miles of sandy beach are available near all the important population centers, and sailboating is popular where enclosed waters are available, as in widespread Sydney harbor. Cricket, tennis, bowling, horse racing, and hiking are national sports. Lotteries provide thrills for many and a means of support for numerous charitable institutions.

Many British customs are continued in Australia irrespective of the changed environment. Christmas is celebrated in mid-summer with the help of a Santa Claus dressed in the traditional fur and red flannel, and he is portrayed driving his reindeer over snow-covered roof tops. Roast goose and plum pudding are enjoyed in bathing suits on a sun-drenched beach.

Tea is the universal beverage for young and old. It is consumed for breakfast, lunch, and dinner, as well as in mid-morning, mid-afternoon, and before one retires. Coffee is relatively difficult to get even in city restaurants.

Terminology and pronunciation follow the British patterns as do the customs of left-hand passing on the highway and how one uses his knife and fork at the table. In Australia the druggist is known as a chemist, the subway an underground, the motion picture theatre a cinema, the department store an emporium, the railway freight car a goods wagon, the automobile truck a lorry, the dry goods store a draper's shop, the fish dealer a fish monger, the hardware store an iron mongery, the mail box a pillar box, the newstand a kiosk, the bowling alley a skittle alley, the radio a wireless, and the water heater a geyser. Bits of American slang, nevertheless, creep into ordinary conversation, and some newspapers adopt the American pattern of screaming headlines across the front page.

Northern Australia is at present of particular interest to Americans because it is from those shores that attacks upon Japanese-held islands may be launched. Darwin, until recently an insignificant port, becomes the spearhead for northward attack! Between 40 and 60 inches of rainfall

occur there during the six months, November to April, while drought occurs during the period, May to October. Temperatures are high throughout the year.

Southeast winds with clear skies and somewhat cool nights prevail during the dry season. Hot, sultry weather accompanies the northwest monsoon winds during the wet season. Large rivers flood the northern lowlands during the rainy season. Rainfall diminishes rapidly as one travels southward into the interior desert. Stunted and drought resistant trees and grass cover the northern coastal region. Cattle raising is the most important industry.

Darwin may be reached by a joint railway and highway connection from the south coast near Adelaide or more quickly by airplane from any of the principal cities. Under normal conditions it is reached by sea from the east coast cities.

The Northern Territory, of which Darwin is the capital, has long been a "white elephant" so far as economic development is concerned. South Australia poured large sums of money into its development, including the railway to Alice Springs. Despairing of the task, the territory was turned over by that state to the Commonwealth of 1909. The railway was never completed beyond Alice Springs, near the center of the continent. Military necessity in 1940, however, led to the building of the defense highway to connect Alice Springs with the railway extending southward from Darwin to Birdum. Thus an adequate overland supply route was for the first time made available between the southern cities and the north coast. Distances of 1,500 to 2,000 miles between Darwin and the more productive and populous parts of the continent complicate the military supply problem.

To the north of Australia lie the Netherland Indies and New Guinea. To the northeast across the Coral Sea lie the Solomons, New Britain, Bougainville, and many smaller islands. Seized by the Japanese in their lightning move to the south, those islands have been the scene of heavy fighting in recent months. All of those islands, along with the Philippines and the Indies to the northwest, are moist tropical lands covered in most places with dense forest growth. High mountains form the cores of most of those islands. Tropical plantations and native agricultural communities are commonly distributed along the coastal lowlands and valleys. While some of the Dutch Islands, such as Java, are densely populated, New Guinea, New Britain and the Solomons are sparsely inhabited by backward natives.

The western half of the large Island of New Guinea belongs to the Netherlands Indies while the eastern half, along with the islands of New Britain, New Ireland, and Bougainville are attached politically to Australia. The northeast quarter of New Guinea and the Australian controlled islands were formerly German colonies.

Australians have long been deeply concerned with the possibility that those islands might fall into the hands of an unfriendly nation. Control of those islands is considered to be essential in the defense of the Commonwealth. Tropical products and the possibility of oil discoveries also make New Guinea of considerable economic interest to Australia. Up to the present time essentially all petroleum products utilized in Australia have been obtained from far distant sources.

That deficiency is one of Australia's most serious economic and military weaknesses.

While many of the small islands lying along the American supply route to Australia are economically unimportant, they possess great strategic value. Even the barren, coral atoll of Canton Island becomes a highly significant base for trans-oceanic air travel. Island bases, such as Honolulu (Hawaii,) Suva (Fiji,) Noumea (New Caledonia,) Pago Pago (Samoa,) Papeete (Tahiti,) and Auckland (New Zealand), are of importance because of their good harbors. All of them are also important as air bases.

The larger islands are also important for their production of war materials and foodstuffs. Hawaii and Fiji produce sugar and tropical fruits. New Caledonia is a storehouse of essential minerals, such as nickel, chrome, cobalt, antimony, mercury, silver, lead, and copper.

New Zealand, like Australia, produces large surpluses of wool, mutton, butter, wheat, and other products essential in the conduct of large scale military operations. Its population of one and a half millions is an important factor in the Allied Nations' strength in the Southwest Pacific.

War in the Pacific is largely a matter of synchronized and extended air and naval operations. Land bases for both air and naval forces are essential in the theatres of combat as well as along the supply routes. Land operations will be of secondary significance and they will focus upon the bases used by air and naval forces.

The vast proportions of the Pacific (one-third of the earth's surface) interpose long distances between major objectives. It is about 2,400 miles from San Francisco to Honolulu and about 3,900 miles from Honolulu to Tokyo. It is about 5,400 miles from Honolulu to Sydney. The distance between Darwin and Tokyo is about 3,400 miles. Much time is necessary to deliver fighting men and equipment to the various theatres of action. Considerable time must elapse between major naval and air punches. Final land action will consist largely of clean-up operations in scattered islands and on parts of the Asiatic mainland.

The Japanese have spread themselves widely over the Southwest Pacific. They have temporarily gained access to important sources of raw materials and foodstuffs. Long distances made it impossible for Allied Nations to assemble strong enough forces in the area in time to challenge the early moves.

The Japanese will require vast quantities of materials and men to protect their greatly extended supply lines and military outposts, thus weakening their offensive strength. As soon as the Allied Nations gain air and naval superiority, the Japanese will be driven back island by island as their outposts are shattered.

Future phases of the war against Japan may shift the scene of action to the North Pacific. Distances across that portion of the ocean are somewhat shorter, and direct blows may be delivered against the production centers of Japan. The crippling blows, which will seal the fate of Japan, are likely, however, to be dealt in the Southwest Pacific. Australia will serve as the effective base for such offensive operations by Allied Nations. American forces will play a significant rôle in that theatre of war.

Switzerland Remains Neutral

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THE reorganization of Europe by the two Axis partners has brought the loss of autonomy to a great number of European countries. A very few countries joined the Axis of their own accord, retaining their independent status. Aspirations for reconquest of territories lost during the First World War drove Hungary and Bulgaria into the Axis fold. Finland joined when Hitler attacked its arch-foe, Russia. The reasons for Rumania's nominal independence and its participation in the campaign against Russia are obscure. Numerous are the countries which were annexed or occupied by the Axis partners; Austria and Czechoslovakia in Central Europe, Yugoslavia, Albania, and Greece in the Balken Penninsula, Poland, Lithuania, Latvia, and Estonia along the Baltic Sea, Denmark and Norway in Northern Europe, Holland and Belgium in Western Europe. France, after its military defeat, was divided. The occupation of about half of its territory and the pawn of over a million French soldiers in the prison camps of Germany guarantee the collaboration of the unoccupied portion, Vichy France, and reduce its nominal independence to a practical vassalage. Only four sizeable countries of continental Europe still remain independent, Spain and Portugal in the southwest, Sweden in the north, and Switzerland in the center of Europe.[1] They together with Eire are the remaining important neutrals of Europe which do not openly favor any side and do not provide material assistance to either of the belligerants. While the political philosophy of the present governments of Spain and Portugal is known to be closely akin to that of Hitler and Mussolini, the political ideals of Sweden and Switzerland are as clear-cut anti-fascist and anti-nazi as those of the subjugated countries or the United Nations. Inevitably the question arises in one's mind, how have these two countries managed to maintain their independence in such close proximity to the powerful aggressors? In the following it will be attempted to answer this question with respect to one of these two countries, Switzerland.

Switzerland's success in maintaining its neutrality cannot be explained by a single reason, such as its political unity despite its four languages, or its army. As is often the case, a group of factors have also here cooperated in maintaining Switzerland's independence. The evaluation of the importance of each single factor is open to individual opinion. As such opinions vary, one or the other reason has found its special advocates which overstressed

[1] The miniature states of Lichtenstein, Monaco, and Andorra too appear still to be independent at present.

its importance. The majority of the Swiss people are well aware that the problem of maintaining their neutrality is highly complex. The Swiss are eager to improve their position by making each factor in favor of their independence count more and more by improving upon it and by multiplying the reasons favoring a neutral Switzerland in the eyes of the warring nations.

A group of factors responsible for Switzerland's independence can rightfully be termed geographic. Foremost among these is the location of Switzerland with respect to the belligerents. The German war machine overran Holland and Belgium in order to execute a flanking attack on the Maginot line, to acquire harbor facilities along the English Channel and the Bay of Biscay for an intensive submarine attack on English merchant shipping, to acquire airfields for the ruthless bombing of the British Isles, and possibly also a general base for an invasion of England. An advance through Switzerland by the German army would also have permitted a flank attack on the Maginot line but would not have achieved the three other objectives as speedily. The advance through the two northern countries had the further advantages of providing a wider front of attack, of taking place at a short distance from the centers of German munition industries in the Rhur Valley, of eliminating the Belgian and French heavy industries at an early date in the campaign by occupation of the coal basins of Belgium and Northern France and the iron mines of Lorraine, of driving a wedge between the two great allies, France and England, which prevented efficient assistance by the latter or retreat of a part of the French army into the British Isles. The attack on France in the extreme north also had the advantage of aggravating Mussolini's preparations for war, forcing the French to maintain adequate reserves at the Franco-Italian border to the South, at the greatest possible distance from the actual fighting. Too, the topography of the Franco-Swiss Jura Mountains with their numerous parallel ranges and deeply cut, narrow gorges through which wind the narrow roads, was not so well suited for mechanized warfare as the much more subdued relief of the Belgian Ardennes. Switzerland was thus again spared an invasion in 1940 as it had been in 1914. The Swiss are inclined to believe that in both cases the respect of the German generals for the efficiency of the small Swiss army has certainly also entered into the calculations of the German General Staff.

The bearing of Switzerland's location between the homelands of the two Axis partners upon the problem of its neutrality is more complex. The incorporation of Austria into the Reich resulted in a common frontier between Germany and Italy measuring two hundred miles in length. The desirable close contact between friends thus exists over a sufficiently wide zone, eliminating the necessity of a conquest of Switzerland for this particular reason. Germany's acquisition of this new border toward Italy brought up the problem of the Germans to the south of the Brenner and the Reschen Scheideck, the two main passes on this border. In order to eliminate friction and make the strategic boundary on the crest of the Oetzthaler Alpen and Hohe Tauern permanently indisputable, Hitler agreed to remove these

German speaking Italian nationals and settle them somewhere in the Reich. These Tyrolians, numbering close to 200,000, have thus far steadfastly refused to leave their mountain valleys of the upper Etsch and Eisack which their forefathers wrested from the forest centuries ago, valleys in which the Italians clearly represent the intruding foreign element, valleys which by all criteria represent true "Deutscher Volksboden" (land made German by the toil of centuries,) the same "Volksboden" which Hitler has set out to reunite into one Reich. The exigencies of the war have temporarily detracted attention from this problem threatening Italo-German friendship.

Switzerland's location between Germany and Italy seems at first sight to render it predestined for a division between the partners. However, this position allows also a buffering effect. Since the major part of Switzerland lies to the north of the main crest of the Alps, Switzerland makes an excellent buffer state for Italy. Conscious of this Mussolini has always refrained from weakening or offending Switzerland. When Italian Irredentists demanded the "liberation" of the Italian speaking Swiss, Mussolini soon voiced his opposition and led Irredentist endeavour into other channels (Corsica, Nizza, Savoia.) This did not prevent the Swiss of Italian tongue from becoming solidly and violenty antifascist while the main body of the Swiss population recognizes in Mussolini rather a friend than an enemy, though many do not choose to rejoice in his friendship.

A division of Switzerland between the two Axis partners would be wrought with difficulties. Neither country could lay claim to the French speaking part of Switzerland for other than strategic reasons. In the division of the main part of Switzerland, linguistic considerations could be applied and would supplement military argumentation. However, in central and eastern Switzerland not only German and Italian are spoken but also Romansch, one of the languages of the Rhaeto-Romanic group, which was made the fourth legal language of Switzerland a few years ago. Romansch is only spoken in the canton of Grisons in southeastern Switzerland.[2] This area of Romansch speech forms a broad wedge between the zone of Italian speech in the valleys of the southern margin of the Alps and the areas of German tongue along the northern margin of this wide belt of mountain ranges. Broad in the east along the border of the Italian Tyrol, this wedge penetrates westward into the heart of Switzerland, the strategic massif of the Gotthard. Since Romansch derives from Latin, to which it is said to be more akin than any other living language, the heirs to the Latin civilization and aspirers to the reborn-to-be Roman Empire have been quick to claim the Grisons on linguistic and cultural grounds. Maps have been drawn on which the Romansch Grisons are classified as of Italian speech, thereby duplicating the feat of proclaiming Ladin and Friulian, languages closely related to the Romansch and spoken in some valleys of the eastern Italian Alp, to be Italian dialects. Prior to the recent resuscitation of the Romansch language, accomplished through its increased use in church and school, German had been used widely and still remains the sole lan-

[2]See Van Valkenburg, Samuel, Elements of Political Geography, New York, 1939 fig. 84, p. 273.

guage of instruction in the upper grades. Italian holds only a rank corresponding to that of English and French, that is, of a foreign tongue, an elective subject in High School. The Grisons are thus definitely German "Kulturboden" (land of German culture,) possibly German "Sprachboden" (land of German speech,) and might even be claimed as "Deutscher Volksboden" by some enthusiast, since numerous communities scattered among the Romansch villages are of Alemannic stock. How these contradictory claims of culture and language could be amicably settled between the two Axis partners would be interesting to watch, especially since the possession of the Grisons with its numerous passes, would be of great strategic importance to either. A division of Switzerland would raise problems not conducive to increased friendship between Rome and Berlin.

Switzerland's most important asset in its present struggle for maintenance of its independence arises from its location in the central part of the Alps, astride the numerous ranges which compose this massif, firmly controlling important passes and their approaches from Germany and Italy. Most centrally located among these passes is the St. Gotthard. Its strategic importance to German emperors bent on control of Italy brought independence from feudal lords to the valley communities of its northern approach through imperial charters during the thirteenth century, little more than a century after a serviceable trail had been built over this pass. In exchange, the peasants of these mountain valleys were to prevent neighboring lords, secular or ecclesiastic, from obtaining possession of the Gotthard. These free valleys through alliance founded the nucleus of the Swiss Confederation which was to grow in all directions from this pass, north to Basel at the upper end of the graben of the Upper Rhine, south to Chiasso at the edge of the Plains of the Po, east to Lake Constance, west to Lake Geneva. Six centuries and a half after the birth of Switzerland, the same St. Gotthard Pass still remains its major guarantee of freedom.

The problem of transportation looms never larger than during wars. During peace time, land transport across Europe was supplemented by the steamer route around the west end of Europe. Cheap bulky goods like coal and ore always chose water transportation. Since the sea route is now controlled by England at the narrow gate of Gibraltar, land communication alone remains, and the barrier of the Alps has assumed greater proportions. Lack of peace time demand has restricted the number of roads and railroads crossing the Alps. High cost of construction of the railroads, causing high freight rates, was a further economic handicap holding down the number of transalpine railway lines. High cost of construction similarly restricted the width of the mountain roads, while high cost of snow removal keeps roads closed during prolonged periods of winter. Three major railroads cross the central Alps, the Lötschberg-Simplon line and the Gotthard line in Switzerland, and the Brenner line between Austria and Italy. The latter railroad can be depended upon for the transportation of troops and war material from Germany into Italy or vice versa, but is unable to handle all the flow of industrial raw materials. Large coal shipments from the German Rhur

and Saar to the often bombed industrial cities of Piedmont and Lombardy had thus to be diverted to the Gotthard and the Simplon-Lötschberg lines. Since these railroads are at present also the major lines for Swiss imports of food and exports of manufactured goods to and from overseas via Genoa, traffic on the two lines has increased remarkably, particularly on the Gotthard line.

These railroads being of such importance to the Germans and Italians, it may be surprising that they have not been seized yet. However, the Gotthard, Simplon, and Lötschberg tunnels and the numerous bridges and shorter tunnels on their southern and northern approaches have all been mined, at least since the first day of mobilization of the Swiss army on September 2, 1939, if not even before, and all these structures are carefully guarded Precise orders have been issued for the release of the dynamite charges in case of invasion by a foreign power. The Swiss can be depended upon to carry out these instructions to the letter, since the national pride of every single citizen could not suffer that any power should ever become master of their Alps, particularly the Gotthard, symbol and guarantee of their independence. Conquest would thus be a very poor solution to any transportation difficulty of Germany or Italy. In fact, the two Axis partners may find it rather advantageous to leave Switzerland in possession of these strategic railroad lines, especially the St. Gotthard with its long approaches from Basel in the north and Chiaso in the south. As long as they respect Swiss neutrality, England can be expected to do likewise. The Gotthard line is thus spared any raid by the precision bombers of the R. A. F.

The efficiency of most transalpine highways as arteries of transportation is handicapped by their narrowness and tortuosity. In the last decade suggestions for the widening of these roads and the construction of new ones have been voiced in Switzerland and have found the backing of Italy and Germany. Improved transalpine roads, it is reasoned, would benefit the tourist industry, increase truck transportation, and assist in the movement of the Swiss army. Opinions for and against these suggestions have been aired in the Swiss press. Military considerations have caused the dropping of such plans since good north-south roads would facilitate mechanized conquest from the north or south. Instead, the system of east-west roads within the Alps has been improved in order to permit speedy movements of an army defending this mountain bastion. The scarcity of motor fuel in Europe further decreases the strategic value of roads and increases the importance of railroads depending on the less scarce coal and hydro-electric power. Switzerland's transalpine road system could thus be of small importance to either Axis partner.

Switzerland possesses no mining resources of any consequence. A few small coal and iron deposits are intensively worked at present, but the production is so small that the mineral wealth of Switzerland could not possibly lure an aggressor nation, not even Italy, which is proverbially poor in such resources. Switzerland's lack of coal is particularly unfortunate, since it forces to exportation of much needed food, particularly cheese, to Germany to obtain coal in exchange.

The ruggedness of Switzerland can be thought of as an important factor assisting in maintaining independence. This roughness of topography may have entered into the calculations of the German General Staff when a quick flanking attack on the Maginot line was contemplated. However, all countries around Switzerland have regions of similar topography and have large bodies of troops equipped and trained for mountain warfare which might be considered a match to the Swiss army. The Swiss terrain might discourage an attack from the south where the Alps rise close to or at the Swiss border, but would be less discouraging for an attack from the north, west, or east, where much of the terrain is hill country.

Against the many geographic reasons enumerated, other reasons seem to carry little weight. This appears especially true of historic reasons. However, the lessons of history taught the Swiss the necessity of strict neutrality at an early date. Switzerland's interest in expansion ended in the sixteenth century when the strategic Jura-Rhine line had been reached in the west, north, and east, and a corridor to the gates of Como in the plains of Lombardy had been gained in the south. Since then Switzerland ceased to participate in European power politics and became neutral in fact. At the Congress of Vienna the desirability of a neutral Switzerland found general recognition and was confined in guarantees by neighboring nations. A century later when invited to join the League of Nations, Switzerland did so only after having been released from all obligations of participation in military sanctions imposed by the League. Even the League of Nations upheld Swiss neutrality. The political education of the Swiss people firmly indoctrinated the necessity of neutrality. The Swiss can be trusted to be strictly neutral in all European conflicts, even to the extent of voluntary control of the press, nay, even voluntary control of the public utterances of its citizens. The firm belief in the necessity of neutrality fortunately also closes the Swiss ears to propaganda from any quarter and to promises of a better future through Anschluss.

It has been stated that the price of freedom is eternal vigilance. This truth is well appreciated by the Swiss. Service in the armed forces is compulsory in time of peace as well as in time of war. About half of the male population between the ages of 20 and 48 comprises the peace time army. Training starts at the age of 20, and everybody starts as a private. Since the force is a militia, the soldiers carry on their civilian pursuits but have their uniforms and other equipment, including rifle and ammunition, handily at home, to change into soldiers at a moments notice. As civilians they are expected to keep up their marksmanship by frequent target practice. The response is so wholehearted that rifle shooting appears to foreigners to be the foremost national sport. Frequent refresher courses and maneuvers keep up the efficiency of this army. During periods of emergency, as at the present, the whole army, numbering around half a million men, is mobilized and the draft age is extended, at present from 16 to 60. Men unfit for militay duty and women are organized for auxiliary tasks, like guard duty, upkeep of communications, construction of tank barricades and pill boxes, dynamiting of bridges, plane detection.

service, defense against parachutists, care of the wounded, fire fighting. Fortifications and pill boxes have been built all over the country, and the well developed Swiss industry has been busy producing the necessary weapons. The spirit of the Swiss army is good. The determination to defend their country is firmly rooted in the soldiers and the civic population alike. Any attempt to conquer Switzerland should prove very costly.

The present war again brings out the usefulness of neutral countries. Declarations of war are followed by the exchange of ambassadors and consular officers of the nations involved, while all other nations in foreign countries are left at the mercy of the enemy government. Neutral countries are then entrusted with looking after a country's interests in belligerent territory. Since the majority of nations are involved in the present war, the number of neutrals has dwindled. To Switzerland has fallen the honor and the burden of repesenting the majority of the belligerents in the countries with which they are at war, including looking after American interests in Germany, Italy, and Japan. The fact that Germany and Italy chose Switzerland as their legal representative in most of the countries with which they are at war can be interpreted to mean that they found the Swiss consular service the best at hand and possibly also the most dependable. This service rendered the Axis nations provides Switzerland a chance to show the importance of neutral nations, and forms an indirect guarantee of its continued independence.

Beginning with the First World War, the Swiss have evolved a new meaning of the concept of neutrality. They decided that looking on passively while their neighbors fought each other was an unworthy form of neutrality. Since they were powerless to stop wars, they resolved to do something to alleviate the horrors. An exchange of the mail of prisoners was organized, followed by an exchange of prisoners who had become permanently unfit for combatent duty through mutilation. Groups of physicians and nurses were sent to battle fronts to assist in the care of the wounded. Later, sick prisoners from both sides were brought in equal numbers to Switzerland where better care could be provided. In the present war, all but the last of these humanitarian efforts are again carried out by the Swiss. The only means of communication between war prisoners and their families, between the people of conquered territories and their relatives abroad is provided by the International Red Cross, a purely Swiss organization with offices at Geneva. Both sides are vitally interested in preventing this humanitarian service from collapsing, since it would not be duplicated by any other neutral country. Pride of having given the world the founder of the International Red Cross provides the hundreds of unpaid workers engaged in this tremendous task at Geneva, and furnishes the countless contributions of all sizes necessary for the upkeep of this organization. The well-proven strict neutrality of the Swiss also guarantees that no military secrets contained in the voluminous files of war prisoners at Geneva will ever find its way to the opposite side. Switzerland is given an opportunity to show that its neutrality is of benefit to all.

Internal dissension assisted in the downfall of Austria, Czechoslovakia,

France and others. Internal dissension in Switzerland quickly abated when Hitler's Third Reich started its annexations. For about a decade, German geographers had been teaching students at all levels that the better part of Switzerland was a part of "Deutschland." They meant to say that Germanic Switzerland was "deutsches Land," that is, was part of the realm of German speech and German culture, which nobody denies. But they also created the impression that Switzerland was a lost province of the political unit "Deutschland." To this all Swiss objected vehemently. Prior to Hitler's annexations of Austria and the Sudentenland, his philosophy had found enough sympathizers in Switzerland to permit their organization into a political party, termed Front, which elected representatives into city and cantonal government. With the rise of direct danger to Switzerland their strength decreased. The same fate befell the Communist party, which had governed some larger cities of Switzerland for decades. The anti-national philosophy of both groups sapped their strength and ended with the outlawing of both parties. Collapse from within or help by fifth columnists is thus a very remote possibility and reduces the chance of a blitz conquest by a foreign opportunist.

For the preservation of its independence, Switzerland is taking advantage of all assets arising from its location. By a strictly neutral policy it takes care not to become involved. Through willing cooperation along humanitarian lines, through its consular service and the International Red Cross, Switzerland demonstrates the great importance of its continued neutrality. Its army, constantly on guard and constantly in intensive training, and backed by a united people, is determined to fight any aggressor. The Swiss hope that the combination will carry them through this war untouched. Since freedom from fear can only return through the crushing of the aggressor nations, the sympathies of the Swiss are wholly on the side of the United Nations.

THE SOUTH: An Old *and* A New Frontier

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FOR many years the South has been voluminously attacked in the public press as a backward and stagnant region of many ills. It also has been ardently defended as a region of many assets and charms. The antithesis inherent in this argument was well illustrated when President Roosevelt called it "the Nation's No. 1 economic problem," while the editors of *Fortune* termed it the nation's "No. 1 Opportunity." What is involved in this contrast, and what is being done about the situation?

That the South ranks low according to many of various economic and social criteria is well known.[1] In per capita wealth, income and savings it is much below the national average. Its annual expenditure per pupil enrolled in the public schools is low, yet the percentage of public revenue devoted to education is above the national average. The South possesses many resources and an abundant population, but in cash money it is poor. Does this poverty result from a lazy and shiftless population? No. Rather does this situation derive from its peculiar combination of resources and historic development.

Natural Resources.—The South is rather well endowed in natural resources, particularly in climate, soils, forests and minerals, though there are counterbalancing disadvantages.

From a climatic standpoint the South has many advantages. Only a few small areas have a growing season of less than 180 days, while southern Texas and Florida have over 320 days. About three-fourths of the South has a season over 200 days in length. Although summers are long and hot, the thermometer rarely rises over 100° F. except in the dry West.[2] Even though high humidity accentuates the effect of temperature on people, the combination is not as debilitating as in much of the Middle West. Precipitation is abundant, except in western Texas and Oklahoma; this rain comes mostly during the growing season when it is of greatest value, and its dependability is high except in the dry western part. The long growing season with abundant rain and warmth makes a combination suitable for agricultural development.

The soils of the South, however, are not as favorable as is the climate. A study of Table 1 reveals that the region, though relatively low in nonarable land, is also low in "Excellent"

1The South as here considered consists of 15 States stretching from Maryland and West Virginia to Texas and Oklahoma, Kentucky to Florida inclusive.
2"Climate and Man, 1941 Yearbook of Agriculture," 746, 704-706.

land. The bulk of Southern soils is in the "Fair" and "Poor" classes. There are several reasons for this low rating of Southern lands: topography, types of soils, and soil erosion. Rough topography in the South is more limited in area than in most parts of the country; it is confined mainly to the Appalachian zone extending from Maryland and West Virginia into central Alabama, and to the Ozark-Ouachita section in Arkansas and eastern Oklahoma. Over half of the South lies in the Atlantic and Gulf Coastal plain, a flat and low-lying area of mainly poor sandy soils.

Another reason is the types of soil groups present, a result mainly of the climate. The humid Lower South lies in the Red and Yellow Soils region; here soils are acidic, strongly leached, low in organic content and mineral nutrients, therefore low in inherent fertility.[3] Most of the soils of Texas and Oklahoma are of the more fertile Prairies and Chernozem types, while in the Upper South the Brown Forest type, also more fertile than the Red and Yellow ones, is dominant. Most of the "Excellent" and "Good" soil areas classified in Table 1 are outside the Red and Yellow zone, though with-

Table 1. Land Productivity Classes of the South: Preliminary*

	South		United States	
Land Class	Million Acres	Percent	Million Acres	Percent
Total	560.9	100.0	1902.1	100.0
Excellent	9.8	1.8	101.0	5.3
Good	72.4	12.9	210.9	11.1
Fair	174.9	31.2	345.9	18.1
Poor	158.3	28.2	362.6	19.1
Non-arable	145.5	25.9	881.7	46.4

*National Resources Board Report, December 1, 1934, 127

Table 2. Extent of Soil Erosion: Preliminary.*

Type	Million Acres U. S.	Million Acres South	South as % of U. S.
Total Area	1903	562	30
Little or no erosion	576	201	35
Sheet erosion:			
¼-¾ topsoil gone	663	200	30
over ¾ topsoil gone	192	86	45
Wind erosion:			
Moderate	233	14	6
Severe	80	12	15
Destroyed	9	3	33
Gully erosion:			
Occasional	523	197	39
Severe	337	64	19
Destroyed	4	3	75
Destroyed for tillage	51	33	65

*National Resources Board: *Soil Erosion,* Part V of Supplementary Report of the Land Planning Committee, 1935, Section IX.

3"Soils and Men, 1938 Yearbook of Agriculture," 1058, 365-366.

in the latter are the fertile bottomlands of the Mississippi and other major rivers.

The soil erosion hazard also detracts from the value of Southern soils. The region has suffered greater losses than any other in the United States. (See Table 2.) Although only 30 percent of the United States in area, it has 65 percent of the land destroyed for tillage. Wind erosion affects only the western part of the South, but the "Dust Bowl" there has suffered heavily. Sheet wash, the main type of erosion in the South, is particularly serious, and in its later stages results in gully formation, a common sight on the Southern landscape.

depleted the soil of its fertility elements.

Southern soils which, in general, never were inherently fertile, are badly run down through soil erosion, depletion of the fertility elements, and poor management. The long growing season in most parts will, however, permit the growth of a winter legume crop to add organic matter and fertility used up by a summer cash crop. Under proper management, Southern soils can be built up to, and maintained at, a level of satisfactory productivity, but such management requires trained, energetic and persistent effort. Such effort has in the past been all too rare in the South, and elsewhere in the country too.

Table 3. The Commercial Forest Situation in the South.*

	Type	United States	South
	Million Acres	Million Acres	Percent
Commercial Forest Land	461.7	202.5	43.9
Publicly Owned	120.8	14.6	12.1
Privately Owned	340.9	187.9	55.1
Saw-Timber Land	212.9	96.7	45.4

*Farmers in a changing World 1940 Yearbook of Agriculture, 563-469.

The long growing season, while an advantage for growing plants, is also an aid to erosion. There is only a short period in winter during which the ground is frozen so that erosion may not occur, and in much of the Lower South it rarely freezes at all. Heavy rainfalls in short periods occur much oftener in the South than in any other part of the country, and each washes much soil into already muddy streams.[4] Poor farm management in cultivating fields year after year in cotton and corn, both clean-tilled crops, has permitted soil losses unchecked by close-growing cover crops and has also

A third Southern resource, the forest, is in much better condition. After 3 centuries of settlement, about 60 percent of this area is still forested. As is shown in Table 3, about 44 percent of the commercial forest land of the country is in the South, and a similar proportion of the saw-timber acreage. By volume the South has only 22 percent of the saw-timber, where the Pacific Northwest has half; however, the latter is cutting its timber at a rate 70 to 170 percent faster than it is growing, while in the South growth and drain were approximately equal in 1938, despite the forest fires.[5] Here

[4] Cf. Stephen S. Visher: "Torrential Rains as a Serious Handicap in the South," "The Geographical Review," 31:4 (October 1941) 644-652.
[5] "Farmers in a Changing World, 1940 Yearbook of Agriculture," 475-481.

then is not only an important timber producing area today, but also the future chief producer in the country; its long growing season enables it to grow commercial timber faster than its competitors, and its woodland owners are rapidly adopting systems of sustained yield forest management.

In minerals the South is also well endowed, particularly in the mineral fuels. The Appalachian Coal Field is the best producing field in the world, and most of this field is in the region. In petroleum and natural gas the South has over half the national production; Texas alone produces a third of it, while Oklahoma and Louisiana rank third and fifth respectively among producing States. This producing zone extends into Arkansas and Mississippi, plus also a small output in the Appalachian area in West Virginia, Kentucky and Tennessee. In iron ore the South contributes about 10 percent of the national output, nearly all from the Birmingham District in Alabama. All of the bauxite (ore for aluminum) produced in the country comes from Arkansas, Alabama, Georgia and Tennessee. Florida and Tennessee dominate American phosphate production, while Texas and Louisiana dominate world sulphur output. Other Southern mineral products of significance are Texas helium, Louisiana and Texas salt, Texas magnesium and North Carolina bromine from sea water, Georgia and Alabama fire-clays, building materials, (cement, sand, gravel, and stone) and even a little copper and lead.

From the standpoint of resources, then, the South is adequately endowed in climate and soils, forests and minerals, for an important role on the national and even on the world stage. The historic development of the South, however, has handicapped the region in using these resources satisfactorily.

Historic Development. — Agriculture very early became dominant in the South, and by 1700, English trade with the Colonies derived two-thirds of its value from the South, chiefly Virginia. This value came from the three plantation crops of tobacco, rice and indigo, and so Southern economic life came to be dominated by the plantation system with its large landholdings, slave labor, and exportable crop surpluses. Although outnumbered by the small subsistence farmers, the planters dominated economic, political and social life.[6]

The Industrial Revolution in England centered in textiles, and for development required a cheap fiber. This cheap fiber came in 1793 when Eli Whitney's cotton gin solved the then chief bottleneck in cotton production, the separation of the fiber from the seed. As a result, cotton boomed across the Lower South profitably then, but with dire consequences for the future. As settlement moved inland from the Atlantic coast, the plantation system was confined to the Lower South, except in the Bluegrass Basin of Kentucky and the Nashville Basin of Tennessee where the plantations specialized in the production of tobacco, livestock and slaves. The rougher terrain of the Upper South, back from the narrow coastal plain and piedmont areas, was not suitable for plantations, and so developed a general farming plus tobacco type of small, owner-operated farms. The shorter growing season (under 200 days) barred the raising of cotton. As the soils of the coast-

[6]Everett E. Edwards in "Farmers in a Changing World," 172, 184-188.

al areas were depleted through the wasteful pioneer farming of the time, the planters pushed west and southwest for cheap virgin soils; these were bought from the pioneer small farmers who retreated to the mountains or to the poor soil areas to become "poor whites," or moved on with the frontier. The profitableness of slave labor on these western cotton lands fixed slavery on the South and was the basis for the continuance of the aristocratic planter dominance of the region.[7]

The competition of western agriculture produced an agricultural depression in the older sections, both in the North and in the South. In the Northeast cities and industries developed, with capital from shipping interests and labor from the depressed farmers. In the Southeast, attempts were made to develop industry, attempts which were unsuccessful because capital was tied up in land and slaves. Agricultural reform was also tried, with scant success; so the South Atlantic States became a region of land abandonment on the worn-out soils as population shifted westward. Agriculture remained dominant, thereby, with single-crop commercial agriculture on the good soils and subsistence agriculture on the worn-out, poor or hilly soils. Cotton rapidly became the chief export, doubling its production each decade from 1800 to 1860; in 1809-10 it furnished 23 percent of the value of all our exports, and in 1859-60 it amounted to 61 percent.[8]

The Civil War broke the old plantation system. The freeing of the slaves meant a great loss of capital to the planters and ended completely the old solution to the problem of labor supply. This loss, plus the war devastation brought regional impoverishment. The new solution to the labor problem was the sharecropper tenant system by which the tenant lived, and still lives, on the credit of the planter until the cotton is in, when he pays the planter a set percentage of the crop. Cotton production rapidly came back to primacy; in 1870 the crop equalled that of 1860, and by 1911 it was four times as great.[9] Two major changes occured during this revival. Whites gradually replaced Negroes in the production of cotton; in 1860, Whites produced 12 percent of the crop, in 1885, 50 percent, and now there are more White farm tenants than Negro.[10] Another change has been a shift westward in the center of cotton production, which is now west of the Mississippi River.

The Rural South Today.—The South today is therefore essentially a rural region in which agriculture is still the dominant occupation. Such a status involves the characteristic low income of agriculture, a situation accentuated by excessive population pressure and the prevailing farm system. The South has the highest birth rate in the nation and the net annual population growth is also highest. During the 1930's, for example, 275 Whites each year became age 15 for every 100 who either died or became age 65; with Negroes the ratio was 210 to 100. The 1937 Census of Unemployment reported 705,000 totally unemployed males on farms, of whom about half were in the South.[11] The region cannot support its present farm population on any adequate standard of living, especially

7Edwards: "op. cit.," 201.
8"Ibid.," 201-121.
9"Agricultural Statistics, 1940," 108-109.
10B. I. Wiley: "Salient Changes in Southern Agriculture since the Civil War," Agricultural History, 13:2 (April 1939) 65.
11"Technology on the Farm," U. S. Dept. of Agric., August 1940, 62, 80.

under the prevailing farm system. Some of the population surplus must leave the farm, and the farming system must be changed. Much is being done in both directions.

Two methods of changing the farming system are mechanization and diversification. Increased productivity per worker through mechanization is the normal trend in this country; in 1787 it took 19 on farms to produce a surplus to support 1 in the city, but in recent years 19 on farms have fed 66 non-farm persons. This change is the result of farm mechanization and other improvements in farm technology.[12] Unfortunately the South has not been able to keep up with the rest of the country in such improvements. The cotton gin ended one bottleneck in cotton production, but there have been few changes since. In 1907-11 it took an average of 105 hours per acre to raise cotton, but by 1933-36 this time was cut to 88 hours. (The comparable figures with wheat are 12.7 and 6.1 hours.)[13] This decrease in labor demand has come primarily through the increased use of improved farm implements and tractors in preparing the seedbed and in cultivating and thinning; harvesting, which takes nearly half of the total hours per acre, is still unmechanized. A successful cotton picker, expected in the new few years, will revolutionize Southern agriculture.

Agricultural diversification will also improve Southern agriculture, but it has been held back through lack of scientific research as well as through economic difficulties. The growth of cover crops is a necessity to reduce the soil erosion and soil depletion resulting from the old clean-tilled row crops. Along with the growth of cover crops goes the use of improved cultural practices such as contour plowing and terracing, all of which are elements in the excellent program of the U. S. Soil Conservation Service. In the South this work is especially important and is developing rapidly; Alabama, for example was the first State to have all of its area included in Soil Conservation Districts. The growth of cover crops was long held back because the native Southern grasses were not suitable so that much work was needed by plant explorers and plant breeders to develop a suitable nitrogen-fixing legume adapted to the acid soils of low fertility. The department of Agriculture has at least partly solved that problem with the development of the lespedezas, which in 20 years have spread over some 20 million acres of land.[14] Other new forage crops are kudzu and other grasses, as well as the improved and locally adapted varieties of wheat, barley and oats.

To use these new cover crops a livestock industry is needed, but its development has faced many difficulties. The problem of forage has been solved fairly well, but the solution to the problem of pests is not as far along, though considerable work has been done. For example, a campaign began in 1906 against the cattle fever tick (Texas fever) with a Federal quarantine of about 700,000 square miles; in 1938 only some 15,000 square miles in Texas and Florida were still under quarantine.[15] Two other problems recently discovered are "climatic" fever in cattle and soil mineral deficiency areas.

12 "Technology on the Farm," 61.
13 "Ibid.," 63.
14 "Climate and Man," 439-458.
15 "Technology on the Farm," 18.

While climate affects animals primarily through its influence on the quantity and quality of the feedstuffs available, there have also been discovered to be direct physiological effects from the temperature, sunlight and humidity. These factors affect comfort, feeding efficiency, and even reproductive capacity.[16] In solving the problem of climatic adaptability, animal cross-breeding has been found the best answer. Brahman cattle from India and Africander cattle from South Africa are crossed with the standard British beef breeds to produce adapted varieties. From a Shorthorn X Brahman cross has developed "the first strictly American breed of beef cattle, the Santa Gertrudis," which was developed on the King Ranch in South Texas by the Klebergs. This new breed is now widely raised in the Gulf South.[17]

The soil mineral deficiency areas are not well known yet, but the Department of Agriculture has set up a special research project on this problem at Cornell University. These deficiency areas affect nutrition: plant, animal, and human. Dr. Ouida Abbott has found that nutritional anemia, not hookworm, handicaps the children of certain Florida areas, a handicap which ends with the addition of iron and perhaps some other minerals to the diet. She tells the story of Willie Thompson as typical:

> I first saw Willie at recess, too listless to move out into the school yard from the door. He'd been three years in the first grade. Then we got some iron in Willies system. In three weeks he was the first out into the yard, chipper as a squirrel, and the next visit I made his teacher was complaining because Willie had got in a fight and bloodied another youngster's nose.

This nutritional anemia came from inadequately nourished home-grown turnip greens, chief local source of iron and other protective minerals. The "salt-sick" disease of cattle, locally prevalent, was found to be the result of a soil deficiency in iron, copper and cobalt. A study of 5 Florida counties showed a high correlation between the distribution of anemic children, "salt-sick" cattle, and soil mineral deficiency areas.[18]

Solution of the mineral deficiency problem for plants, animals and men ties in with the need for new plants. Dr. Walter T. Swingle of the Department of Agriculture, the man who established the date industry in the United States, estimates that China has over 4,000 excellent food plants, whereas the United States has only about 500.[19]

Agricultural diversification does not involve just the development of a new livestock industry and new food crops; also necessary are new cash crops. Such crops, however, require instruction in production techniques and the provision of local and regional markets. With the exception of localities specializing in other crops, the Southern farmer knows mainly the techniques of producing cotton and corn, the two traditional crops. New crops involve new techniques, and learning these requires teaching as well as incentives to change the old ways. The county agricultural agent system has been working on this problem for years. In the last few years it has been aided by the very valuable work of the U. S. Farm Security Adminis-

16"Ibid.," 132.
17"Climate and Man," 508-516.
18Arnold Nicholson: "Yield Is Not Enough," "The Country Gentleman," Sept. 1941, 7ff.
19Ben Hibbs: "Rim of the Future," "The Country Gentleman," December 1935, 72.

tration. This agency makes rehabilitation loans to farmers for needed equipment and supplies; until a loan has been repaid, the F. S. A. supervises the farmer's program and thereby ensures the adoption of up-to-date activities. Much good work has been done, and more needs to be done. The products of a more diversified agriculture must find markets, especially because of the decreased demand for cotton in recent years. While some markets can be found in Northern industrial areas, there is a limit to their consuming power. Alternative markets for industrial raw materials and foods must be developed. Both types are being developed.

The Industrial South:—The progress of industrialization in the South is the greatest hope for the solution of the many ills of Southern agriculture, the low income level, and many other regional problems. Not only will this provide local markets but also will it help draw off at least part of the surplus farm population. Such industrialization is progressing, and rapidly. There have been three main stages in the development of Southern industry: the textile revolution, the chemical revolution, and the current war boom.

In antebellum days the South tried to industrialize, particularly in the textile field, but unsuccessfully. During and after Reconstruction, Southerners did start developing manufacturing. The most obvious type was and is the use of the chief local raw material, cotton. This development began largely in the 1880's and was centered in the Piedmont section from Richmond, Va., to Montgomery, Alabama. (See Table 4.) In 1925 the cotton-growing States for the first time had more active cotton spindles than New England, the old center of the industry, and in 1940 the South had three-fourths of those in the United States. Next to Miscellaneous Food Industries, the textile industry is the largest industry in the South, with nearly half a million employees. It is still located primarily in the Piedmont, though there has been some expansion west into Texas.

The chemical industry in the South developed rather slowly until in the 1930's came the pulp mill boom. Between 1935 and 1940 there were 15 large mills built and others have been added since. The value of this new investment was over $150 million. The South now has about 40 percent of the annual wood pulp production of the country, with about 80 percent of the kraft (brown wrapping) paper and container production.[20] The shift southward of pulp production has furnished a new outlet for Southern forests, a new market for the products of that 60 percent of Southern lands growing wood. This phase of chemical development applies not only to

Table 4. Shift in the Cotton Textile Industry.*

	Active Cotton Spindles — millions		
Year	U. S.	New England	Cotton-Growing States
1880	10.7	8.6	0.6
1900	19.5	13.2	4.4
1920	35.5	18.3	15.2
1940	23.6	5.3	17.6

*Statistical Abstract of the U. S., 1941, 901.

20"Twentieth Annual Report of the Southern Forest Experiment Station" (1940), 4-5, 10.

kraft paper and containers (which constitute half of our national paper consumption) but also to writing papers, newsprint and rayon. Of 30 rayon mills in the country in 1940, the 15 in the South had 73 percent of the annual capacity, and had an investment value of over $200 million.[21]

There are many other types of chemical industries in the South, and they are rapidly expanding. In 1914 about 22 percent of the national output was from the South, and by 1933 about 30 percent.[22] There has been much expansion since then, and the war plants built in the South also include many of chemical type. Assuming that the four Census classifications of Chemicals and Allied Products, Paper and Allied Products, Products of Petroleum and Coal, and Stone, Clay and Glass Products represent the industry, there were in 1939 4800 establishments with over 230,000 employees earning nearly $253 million annually, with products worth $2.5 billion.[23]

In the last decade manufacturing has been growing more rapidly in the South than in the rest of the country. (See Table 5.) For example, during the later 1930's Alabama's iron and steel industry operated consistently above the national rate of capacity used, and well over $50 million were invested in expanding its facilities. Although the 1940 Census shows 16.3 million people on farms, their 1939 cash income is estimated at only $2.5 billion; the value of manufactured products was nearly four times that sum and was produced by less than half as many families.[24]

The current war boom is accentuating the rate of Southern change. New war industries include not only chemical types, but also metal products, airplanes, and especially shipbuilding. New shipyards have developed in every coastal State, at nearly every port, and even at some inland locations. Some of these industries though what percentage of them no one can yet tell, will be convertible to peace-time uses after the war, and the South will have gained thereby. An especially important gain will be in the training of labor, for the South normally has had a large surplus of unskilled labor; now many thousands are being drawn from the farms to the factories, where they are being turned into semi-skilled and even skilled workers.

Table 5. Recent Growth of Southern Manufacturing.*

	1935		1939	
Classification	U. S.	South	U. S.	South
No. of Establishments	169,111	29,735	184,244	34,184
Wage Earners — thousands	7,379	1,406	7,887	1,587
Wages — millions	$7,545	1,062	9,090	1,332
Value of Products—millions	$45,760	7,426	56,829	9,802

*Blue Book of Southern Progress, 1938 and 1941.

The Post-War South:—The post-war South will be an improvement over

21"$200,000,000.00 Invested in Southern Rayon Mills," "Manufacturer's Record," March, 1940, 27 ff.
22Harry E. Barnard: "Chemurgy Comes South," "Manufacturer's Record, June 1939, 26 ff.
23"Manufacturer's Record," December 1941, 24-25.
24Farm income from "Statistical Abstract of the U. S., 1941," 710.

the old South because current changes are in line with the long-term needs. The exodus of labor from the farms to industry and to the armed forces helps relieve the excess population pressure on the land, and much of this labor will never return to the land. The continuing industrial development of the South will support more laborers who will provide larger local markets for the products of Southern farms, and the industries themselves will consume more farm products. Further scientific research will continue to help solve the problems of Southern agriculture. Our new pioneer area, the South, faces an improving present and a promising future.

THE "SEND-OFF" TO WAR

Choice golden air; a waxing summer day;
So endless, far, the pavonated sky;
Our rippling Emblem spreads aloof to stay—
Emblazoned irridescence teeming high!

Days, weeks, up skies she's been these seasons thru;
Her lineal waving noble aspect bears.
Why, thru all hours of restive '42,
Her riant rhythm billow martial airs?

Repeatedly "off troops" in alysm pass
For rendezvous in cause of world dismayed;
To strike destruction's ruthless, pagan mass—
Stream thou, "Old Glory," high 'gainst skies displayed!

Beneath my ledge move rugged youth in lanes;
Far wide it's been that way the Country thru:
Out cities, towns the marching to war strains—
Ye, youthful men, to fore — Red, White and Blue!

Ethereal realms, placid o'er each home,
Here Time rolls up a sullen, cruel storm.
With potent zeal our Emblem speaks out dome:
"War! War! Old Glory onward! Bear her form!"

War relics: cannon, statues sedate, stand
In view to urge world keep a shining sun;
That Freedom's Cause far widen each loved land;
Re-fuel fires of right that blood-streams won.

Home-cloister tears unseen profusely flow,
And hearts there strain at call of Mars: "Son, you!"
Yet, as ye, Soldier Gallant, voice: "I Go!"
Hope Springs in Nation, World — Red, White and Blue!

—J. E. BOETTICHER

NOTE—The American Flag on the highest tower; the perfect season day; the mounted cannon and statuary, of other conflicts, standing on a spreading sward; all business suspended as officials and bands escort away our boy troops on streets beneath; this is the setting of a solemn occasion where all can perceive somewhat of the exigencies of a world at war. Not only solemnity, but sanctity and inspiration fire the viewing throngs with this consciousness: Here is the noblest act, youth placing his all on the altar to save a wholesome cause for all of earth's humanity.

The Lower Lakes Region *in* War Times

By REUEL B. FROST
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THE Lower Lakes Region is a vital cog in the machinery of the Supreme War Effort. The very existence of such cities as Detroit, Cleveland, Chicago, Toledo, Buffalo, Akron, Dearborn, Youngstown, Canton, Massilon, South Bend, Gary, and a host of other cities shows that even in normal peacetimes numerous advantages favor industrial development and the nourishment of large agglomerations.

According to J. Russell Smith,[1] the "Lower Lakes shores have metropolises. Factories—factories with boats and trains bringing crude raw materials—of such is the Lower Lakes Region—Iron ore, pig iron, steel, coal, coke, cement, sand gravel, lumber, rubber, cotton, wheat, oats, corn, flaxseed, cattle and hogs—these are the things that glide and dump, bellow and squeal, make dust, smoke, tonnage, jobs, and profits in this region of cities." The Lower Lakes is also a region of factory by-products—toluol xylol, benzol, ammonia, skins, hides, bones, hoofs, horns, slag from which thousands of implements of war are manufactured.

The location of this important region is advantageous as regards the receipt of raw materials and strategic as regards safety from air attack. These cities have been built to serve the needs of the word's busiest inland waterway—the Great Lakes—and to shape the crude raw materials made available by this great waterway.

The Lower Lakes Region even before Pearl Harbor, began to show the impact of World War II on its manufacturing establishments. Acceleration, in production of vital materials such as iron, coal, steel, and chemicals, the conversion of existing plants to other types of manufacturing and the location of numerous typically war plants were the overall, noteable effects. The objective has been to make the most possible use of existing plants, engineering skill, skilled labor, strategic location with respect to shipping are assets which this important region possesses.

Iron and Steel Industry.

At the close of the 1942 season the greatest tonnage of shipping ever handled on the Great Lakes will be a matter of record. The principal item of commerce is iron ore moving from the ports of the Upper Lakes to the ports of Lake Erie and of Lake Michigan. Already (November) more than 90,000,000 tons (as compared with the previous record of 68,000,000 tons) of the precious ore have been received. Several factors have contributed to this record breaking accomplishment: (1) the shipping season this year began in March, more than a

month ahead of schedule; (2) the Great Lakes were less stormy this season than in some years; (3) the addition of several ore boats, some new ones constructed during the winter, to the ore fleet; (4) the uninterrupted flow of basic ore from the mines to the Upper Lakes ports; and (5) the freedom from labor disputes or stoppages throughout the shipping season.

This record breaking tonnage of iron ore is equivalent to approximately 45,000,000 tons of pig iron. Steel is then manufactured from pig iron and scrap steel, the charge being in the approximate ratio of one ton of scrap to one ton of pig iron. If 45,000,000 tons of scrap were available, then our steel furnaces could operate at full capacity.

Fortunately, the steel plant officials had the foresight during the past-depression years to rebuild and repair old blast furnaces, to reconstruct open hearth furnaces and to repair existing steel manufacturing equipment. Consequently steel production in 1943 may exceed all previous records if enough scrap steel is delivered to the open hearth, Bessemer, and electric furnaces to keep steel production up to capacity of 87,000,000 tons. Likewise new modern rolling mills capable of rolling a strip of steel 96 inches wide were built and have proved invaluable in the manufacture of sheet steel, so much in demand at the present time.

Coal production has kept pace with the unprecedented production of iron ore. Throughout the year increased tonnages of coal have been made over all railroads to supply the coking plants in the steel districts and an enormously increased volume of coal has been delivered to the coal docks at all coal shipping points for delivery all over the Great Lakes. Coal makes up 85% to 99%, depending upon the terminal, of the total tonnage of all shipments from these coal shipping ports.

The giant self-unloading ships of the limestone fleet have operated at capacity throughout the summer with the result that a record tonnage of fluxing limestone is now in stock piles of the steel companies or in storage yards of the railroads serving the steel districts. These three raw materials are charged into giant 1000-ton blast furnaces and form the basis for industrialization in the Lower Lakes Region. Many port cities serve only as transhipping cities for the iron and steel cities of the interior while in others iron, ore, coke, and limestone are charged into the blast furnaces near the end of navigation on the Lake Erie and Lake Michigan shorelines.

Changes in the Automotive Industry.

Except for certain standard types of army cars and of army trucks, the manufacture of automobiles has stopped. The industry has been converted wholly to the production of war materials. The New war industries have made full use of the existing factory buildings, the automotive engineers and administrators and the skilled workers already living in the automobile manufacturing cities. This conversion has been enormous in scope, revolutionary in its changes, and surprisingly rapid in the time consumed in the changeover. In many instances, only the factory buildings were used. New floor plans had to be worked out, new machine tools made and installed, and new assembly lines planned for the new weapons of war. Miraculous progress in organization and in retool-

ing the automotive industry for war production has been made. The industry is now and has been for some time producing tanks, antiaircraft guns, artillery, aeroplanes, aeroplane engines and parts, machine guns, marine engines, and many other weapons of war.

In the same category as the automotive industry is a whole host of new factories located throughout the Lower Lakes Region. These include assembly plants for fighter planes, two-motored and four-motored bombers, aeroplane testing laboratories, aeroplane parts factories, shell loading arsenals. Existing plants have been expanded and assembly lines extended to accelerate production. This is especially true of factories manufacturing aeroplane assemblies and parts.

Importance of the Machine Tool Industry.

To a very large extent the responsibility of a complete changeover experienced by the automotive industry has fallen upon the manufacturers of machine tools. Machine tools are the tools that make the tools of war. In the machine tool field the United States leads the world and the Lower Lakes Region is the center of the industry. Through the combined efforts of the machine tool makers in the automotive industry and those manufacturers of machine tools outside the industry, the job of retooling our factories for maximum war production will soon be accomplished. Machine tool factories vary greatly in size and are widely scattered as to location. As a rule the largest plants manufacturing turret lathes, automatic stamping machines, hydraulic presses, etc. are located in the largest cities, while the small machine shops, foundries, often manufacture parts for a large machine assembled elsewhere. In the latter group literally hundreds of small shops and factories are widely dispersed throughout northern Ohio, southern Michigan, northern Indiana and Illinois, and western Pennsylvania.

This impact of the war expansion was felt first in the field of machine tool manufacturing. Fortunately it was felt even before Pearl Harbor and with our reservoir of existing plants, of the skilled machinist and toolmakers, and experience in manufacturing machine tools, production of many of the essential war materials is ahead of schedule.

Expansion of Shipbuilding Industry.

Normally the shipbuilding industry on the Great Lakes is confined to the ports of the Lower Lakes and is limited in scope to the building of ships to be used on the lakes. And although shipyards and dry docks are located in many port cities, the work in peacetime is confined to the construction of shallow draft ore boats, tankers, limestone boats, and some small craft. Throughout the long winter season shipyards are kept busy repairing, refinishing, and outfitting the 500 or more ships in the ore and limestone fleets.

In war times, however, the shipyards are working overtime constructing such shallow draft ships as mine sweepers, P. T. boats, corvettes, and submarines, for use on salt water, as well as building some new 600-foot ore boats for use on the Great Lakes.

Other plants are manufacturing marine engines for use in ships construct-

ed in the shipyards of the Great Lakes as well as for installation on ships manufactured in the shipyards of our coastline.

Organized Manufacturing.

War production has brought about a reorganization of manufacturing methods. There are at present few examples of a completely integrated industry no matter how large or how small the plant. Nor are there many cases where one large assembly plant takes the entire output of smaller factories as was frequently the case in automobile manufacturing.

Rather an effort has been made to utilize to the fullest possible extent the great reservoir of manufacturing plants, from the largest factory to the smallest machine shop, the machine tools already installed in such plants and the skilled operators and workmen. Plants now operate under the contract and subcontract system. A company gets a contract for an assembled machine gun, sub contracts for the manufacture of machine gun parts are let to one or a dozen subcontractors who manufacture the parts according to specifications. The parts are then assembled by the contracting company. This system has initiated problems in inspection, synchronization of output, cooperation of effort and, not the least serious of the problems, transportation of the many widely separated parts. Any delay in the manufacture of one small, but vital, part may be the cause of an assembly line stopping. On the other hand, the system has had beneficial effect of unifying the efforts of manufacturers so that their objective is to get the maximum done, with the greatest possible skill in workmanship, in the least possible time.

Chemical Industries and War.

Grouped under the general heading of Chemical Industries are those companies manufacturing chemicals, paints, and varnishes, rubber and fertilizers. Large chemical plants in the Lower Lakes Region manufacture those products in greatest demand in a concentrated industrial region. Industrial acids, caustic soda, hydroxides-oxygen and acetylene gases, and etc. are used extensively in the other industrial plants. For example, sulphuric acid is used in carload lots in the iron and steel mills for "pickeling" steel and in fixing ammonia which comes from the by-products coking plants. Welding gases are used in great quantities in cutting iron and steel, and in welding all kinds of metals in shipyards, steel plants, and, indeed, in most metal manufacturing plants.

Some of the largest and oldest paint and varnish manufacturing companies have their plants in the Lower Lakes Region and their products are "known all over the world." Most all of the metal manufacturing plants use large quantities of paints and varnishes. Whether they be the manufacturers of the automobiles, machine tools, ships, toys, or hospital beds, finished articles are painted to protect the metal. For this reason the local market is important. In many cases pigments have to be imported from far away places, while the linseed oil is extracted from the seed shipped in over the Great Lakes.

Akron, Ohio, as everyone knows, is the rubber capital of the United States. Its location and growth there is historical and as closely related to the early market there as to any other cause. Great rubber plants at Akron

have grown and expanded many times in spite of the fact that raw rubber had to be transported from the Malay Peninsula and the East Indies. Those same factories continue to turn out tires and thousands of rubber products, but emphasis has been placed upon the needs in war industries rather than on the manufacturing plants making consumer goods.

Henceforth rubber will be a purely chemical industry, at least for the duration and probably longer. New plants for making raw synthetic rubbers are being constructed and will furnish the Akron plants with the raw material out of which synthetic rubber products will be manufactured.

Commercial fertilizers are the by-products of ever so many manufacturing enterprises. Meat slaughtering and packing, the coking of coal in the iron and steel plants, the fishing industries, chemical plants and many more furnish raw materials from which fertilizers are manufactured.

Meat Slaughtering and Packing.

A casual glance at an economic geography map of the United States will show that the Lower Lakes Region is on the northern and eastern margin of the corn belt. The region is therefore nearest to the great livestock producing region of the United States and shares with other regions the business of slaughtering and packing of meat consumed in the United States. All of the large cities of this great manufacturing region have stock yards, slaughter and meat packing houses, and one, Chicago, is America's meat packing metropolis.

The Plight of Agriculture.

In few, if any, regions of the United States do agricultural possibilities surpass those of the Lower Lakes Region. With an even distribution of rainfall averaging 35 inches per year, with a growing season of six months or more in length, with a level to gently rolling topography, a slightly podzolic but fertile soil, crop yields are higher than the average for the United States as a whole. Moreover, an excellent market is afforded by the numerous urban communities where war industries are running twenty-four hours a day, and high prices are assured for agricultural products. In spite of these very favorable circumstances, agricultural production is in a sorry plight. The 1942 crop has been a bumper one but because of the serious labor shortage all of the crops have not been harvested. The apple crop was only partially harvested, the soybean harvest was not completed because of the shortage of combines, the cherries were not all picked, and many of the truck crops were unharvested.

Several factors have militated against a prosperous agricultural condition in the Lower Lakes Region: (1) the high wages, paid in the nearby factories to men having mechanical skills; and most farmers are either skilled or can qualify as skilled factory workers in a short time; (2) the selective service has drained the young men away from the farms, leaving the father who, in many instances, is getting too old to do the hard labor on the farm; and (3) the high prices of livestock have encouraged the selling of dairy cows to butchers, and the consequent reduction in production of dairy products.

There are three types of farmers in the Lower Lakes Region: (1) the full

time farmer, who most frequently is a dairyman; (2) the part-time farmer (called "Saturday afternoon farmers" by the full-time farmers) who lives on small farms varying in size from 5 to 50 acres and who works in nearby industrial plants; and (3) specialized farmers, such as market gardeners, and commercial fruit growers. In all three categories the shortage of farm labor is serious. A reliable estimate in Lorain County, Ohio, places the decrease in crop acreage for 1943 at 20% to 25% below that of 1942.

Meat production cannot be increased quickly by serving notice that more meat is required. It takes at least a year to increase the supply of hogs in a condition suitable for slaughtering, and at least three years before a prime range steer is ready for market. For these reasons meat production is fairly uniform over a period of time. But during 1942 the high prices paid for beef and the shortage of labor existing on dairy farms together with employment of farmers in the factories have caused many dairy farmers to sell their herds. This has had the effect of increasing meat production to meet the demand but to decrease, in some localities at least, the supply of dairy products. This is particularly true of the Lower Lakes Region where there are so many industrial plants, paying high wages and employing so many more people than they do under normal peacetime conditions.

"We might look to the example of European schools, where geography is taught not only on the elementary level but on all levels."—CARL S. MEYER—*in an article, "Geography for the Junior Colleges" in the "Journal of Geography," Sept. 1942, p. 225.*

New Media *for* Promoting Effective Resource Management

By JOHN B. APPLETON, *Director*
Northwest Regional Council
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EFFECTIVE resource management is vital to the continued well being of all men. We cannot afford to misuse the natural heritage upon which our civilization is built. Look back through history and recall what happened to those lands where soil was depleted and misused. The old civilizations of Babylonia, Syria, Palestine, and of many other historic areas decayed. Why? The land, the basis of their existence, was ruined through misuse. Think of the ghost towns in Western United States. The resources which brought them into existence were exhausted.

This country has already done much to promote the wise use of our resources. Much has been done. For example, many effective demonstrations of improved farm practices have been provided. Much teaching has been done to explain why such practices are essential. But all too few people have been reached. Mismanagement is still rife not only in connection with land but with most of our resources. Too few of our citizens realize just what the resources of a given area mean to them or the importance of effective management. Too few realize the consequences that inevitably follow depletion. Too many economic obstacles to effective conservation still remain.

The old established approaches to resource management involved too few people. They were not intended to reach the man in the street. They were designed to meet the needs of only a segment of our population—and even then they only partially succeeded. Yet the wise use of our resources should be the concern of everyone.

In the past we have concentrated on training highly skilled but narrow specialists. These are essential to progress, but in addition we need those with a broad background—men who are familiar with each branch of science and who can evaluate its findings in terms of social significance.

Efforts are now being made to provide a broader background for technical and administrative personnel and especially to promote public awareness and understanding of what our resource problems are, why they have arisen, the consequences that will befall us if they are not solved, and the steps that should be taken to find solutions. It is not enough to reach only those actively concerned with a particular resource. Public understanding in the broadest sense is essential to the establishment of sound policies of resource management through the democratic process. But a democracy asks far more of its people than does an autocracy. In Germany one or two men

make a decision; the rest do as they are told. A democracy implies popular control; it entails intelligent cooperation and participation.

Public understanding can come only through education. Where should this educational process begin? I firmly believe that it should begin in the public schools. I believe that we owe it to our young people that when they emerge from school, whether it be the elementary or secondary school, or college, they be aware of the problems that confront them in the region in which they expect to live. Let us send them out knowing what the problems of their community, their state, their region are. Many of those problems pertain to land and the use of that land. They should also know what is being done to meet those problems and why particular measures are being adopted to solve them. You may say that they will read about such things later on when school days are over. Well, most of us who are doing a day's work find it somewhat difficult to continue our education as adults. Some of us go on because we have to—it is our job. The average person—farmer or business man—is primarily concerned with making a living. He takes scant interest in problems about which he knows very little or even in problems of his own community. His interests are often very narrowly prescribed by background and occupation. Had he studied these problems in school, had their importance been impressed upon him then, they would be more apt to command his attention in his adult years.

But education should be a lifetime job for all. It should not end with school or college. A major defect in our educational system is the lack of adequate and appropriate facilities for adult education. There is a definite trend toward meeting this need. Some states — some communities — are far ahead of others. Some are woefully backward. A well planned systematic program designed to provide opportunities for the study of important state, county, and community problems is essential to the promotion of public understanding. Many are, of course, technical in character. But the analysis of problems in resource management will involve study from all angles —an essential to real understanding. Such a program, however, demands teachers with the broadest possible background and a non-partisan approach.

Significant steps have been taken in the Pacific Northwest to meet this urgent need. Intensive summer workshops for teachers have been operated at Reed College, Portland, and at the University of Washington. Short orientation institutes have been organized exclusively around resources and resource problems. In addition to receiving instruction from leading experts in the region, the teachers have devoted considerable time to the development of units for classroom use in the public schools. A considerable number of teachers from all over the region have participated in these workshops since they were inaugurated in 1939.

During the past four years the Northwest Regional Council has aided in the organization and operation of lecture series especially designed for teachers during the school year. These dealt exclusively with resource problems of the region. The lecturers have been drawn from both federal and private agencies in order to expose the

audience to various viewpoints. Several hundred teachers have participated in these lecture series, which have been held at a number of key points in the region.

One aspect of the educational process is the dissemination of information in effective form. One of our greatest problems is to get people to read. Thousands of books and bulletins have been written that only a handful of people have ever read. Most of these publications are too bulky and too dull to attract the average reader. They clutter up the shelves of most libraries and occupy space that could be put to much more profitable use. Our job is to encourage the preparation of more readable material, bulletins which will handle technical data in a way that the average person can comprehend, bulletins that attract the eye. Take any magazine and examine the advertisements. All are designed to sell an idea, to interest the reader, to convince him that he should use a particular product. The advertiser educates his public because it brings returns. The radio uses the same techniques except that it appeals to the ear rather than to the eye, but the spoken words are designed to educate the listener as to the qualities of a particular product or individual. We who are interested in resource problems should try to do as effective a job in selling our ideas as commercial organizations such as General Motors or General Electric. All of you are doubtless familiar with the average dry-as-dust technical or semi-technical bulletins that characterized most government publications in the recent past. How few of them were widely read! Research wasted.

Some government agencies have now realized the importance of presenting their information in more attractive forms, designed for the average nontechnical reader. One of the leaders in this recent trend is the Soil Conservation Service. This bureau of the United States Department of Agriculture has an idea to sell and has gone about it very effectively. Other government agencies, both federal and state, are moving in the same direction. This puts research to work.

Another trend in resource management is especially encouraging. More and more people are realizing that this is a complex problem; that it involves the integrated skills of various kinds of specialists in the physical, biological, economic, and social fields; and that effective policies can be formulated only through cooperative action. The technical specialist also is finding, for example, that the farmer through actual experience can contribute information that is vital to the solution of many land-use problems. In the past it has been difficult to bring these different groups together. The expert has been loath to accept the farmer's point of view. The farmer has resented in many cases the intrusion of the government expert. Even the different agencies concerned with resources have failed to cooperate one with the other. This situation is giving way rapidly to one of close cooperation. The Pacific Northwest is well ahead of most parts of the country in this respect. Many examples could be cited but one or two will suffice to indicate the progress that is being made.

Not long ago, the Northwest Regional Council, helped to sponsor a cooperative study concerned with devising more effective ways of managing Idaho State-owned lands. Collaborators

in this investigation included numerous state and federal agencies including the Soil Conservation Service, Forest Service, Grazing Service, Agricultural Adjustment Administration, Farm Security Administration, Idaho State Planning Board, University of Idaho, and numerous local groups. This cooperative effort resulted in a preliminary comprehension and constructive analysis of a very complex problem. No single agency, no individual, could have done this job as effectively on his own.

The Snake Basin is vital to Idaho since so much of the State is too dry or rugged for agriculture. Conse quently the management of the cultivable land is of vital concern to all. To meet this situation, various detailed area analyses of the Snake Basin have been made or are in progress. These jobs are being carried out in a similar cooperative fashion under the general direction of the National Resources Planning Board. It is in this limited area that much of the increased agricultural production during the present emergency will take place.

One of the outstanding large scale cooperative attempts to develop a sound land-use program is going on in the Columbia Basin. The water imbounded by the Grand Coulee dam will make possible the irrigation of 1,200,000 acres of what is now arid land. The complexity and magnitude of the problems involved made it necessary to utilize all the knowledge and experience that could be found. No single agency could possibly provide the answers. Consequently in 1939, under the direction of a competent leader, the Columbia Basin Joint Investigations were set up. All federal, state, and local agencies qualified to aid were drawn into the study. Actually, more than forty agencies, represented by more than 100 experts, have been engaged in studying twenty-eight separate but closely related problems. It is expected that comprehensive plans for the effective development of the area will be worked out prior to settlement. This is a tremendous advance in land-use planning and indicates the trend in resource management techniques, in cooperative research.

What can be done on a large scale is equally appropriate for small areas. The formation of democratically controlled Soil Conservation Districts and Irrigation Districts makes similar cooperative study of local problems possible. Such organizations are facilitating a much more effective management of land and water resources than would be practicable under individual initiative.

The same principle may be illustrated by what has happened at Elma, a small community in Washington. Near exhaustion of the main economic prop of the area, timber, brought the realization that the community was on the way out unless steps were taken to provide other sources of income. The whole economy of the region needed to be revamped. Community leaders, realizing that something had to be done, requested the Washington State Planning Council to help them solve the problem. Under the guidance of this agency, the community organized and carried out an intensive survey of its actual and potential resources with the help of appropriate technical experts. On the basis of these studies, plans were worked out for a wiser use of the resources that remained and the development of those which had been

neglected. This was a community project in which all types of citizens actively participated, including the high school students. The results have been incorporated in a comprehensive report and already steps are being taken to put its findings into effect. Although the survey was made under the auspices and direction of the State Planning Council, the people of Elma feel it is their own because they helped to make it. This survey has already encouraged other communities to seek similar guidance. This new cooperative self-help approach to the solution of community economic problems that stem from misused and unused resources should be encouraged. A similar study has just been completed in the Skagit area of Washington.

The management of our resources and particularly of land involves many technical jobs that offer opportunity for cooperative effort. In recent years groups of industrial and business people in various parts of the country have been concerned with bringing agriculture and industry together through the medium of chemistry. Chemurgy, as it is called, has made new industrial outlets for surplus agricultural crops available. Cull crops, formerly wasted, are being converted into commercially valuable by-products and farm income materially increased. Interesting in this regard is the use of cull potatoes in Idaho for the manufacture of starch. Chemurgy offers interesting possibilities for new and profitable uses for farm land. Such readjustments, however, must be adapted to local conditions of climate, soils, and markets.

Similarly, the problem of scientific land-use is receiving increased attention. Farmers and technicians are cooperating successfully in land capability and land-use feasibility studies. Science and experience are becoming team mates in the solution of land-use problems. This mode of attack is proving highly successful in promoting sound land-use policies. No longer need the farmer work alone. Group action assisted by scientifically trained experts is available if and when he wishes to take advantage of them.

One other important development should not be omitted. It has been indicated already that resource problems are complex. Their solution involves the integration of a relatively wide variety of skills and knowledge. The soil technician, for example, cannot solve all the problems of land-use for he is a highly trained specialist. Our education system is at fault for we have concentrated upon the training of narrow specialists. The farther one progresses the more restricted his specialty is likely to become. What we need urgently are well trained generalists—people with a broad rather than a narrow training. The difficulty with a specialist is that he usually has little knowledge of or interest in what specialists in other fields are doing. To solve a resource management problem necessitates a broad approach and involves the integration of several fields of knowledge. We need, therefore, to give our leaders the type of training which will enable them to make this synthesis readily.

The United States Department of Agriculture has recognized this deficiency in its skilled personnel. As one way of meeting this situation it organizes what are known as "Schools of Philosophy" whose functions are to give resource experts, administrators, teachers, business men, and community

leaders an appreciation of the broader aspects of resource management, of the inter-relationship of one specialty with another, of the need for a broader basis of understanding to do an effective job even as a narrow specialist. In a sense this is just another phase of promoting public understanding and cooperation. Experts and community leaders are educated side by side in matters that vitally affect their economic life. Each helps to educate the other under expert guidance. These represent one of the most promising ventures the United States Department of Agriculture has ever inaugurated. Of course we need the specialist. He has a specific role to fill. But we do need more generalists among those in the administrative ranks, among our community leaders, teachers, and citizens at large.

Serious thought is being given at this time to the development of a graduate study program in which the emphasis would be on the training of a highly selected group along these lines. Such a program should be of interest to administrative officials in various government departments as well as to social and physical scientists. It would be organized around the intensive study of major regional problems through the seminar method.

RECENT SARGENT PUBLICATIONS

EDUCATION IN WARTIME, pub. June 1942, 224 pages, red silk cloth, $1.50. Reviews educational thought, publications and doings of the year. Tells what's doing in schools and colleges in this time of change, what war has done and what will win. Finds educators unprepared and lacking in pertinent information. Redefines education and looks for hope to the inspiring individual rather than to isms and systems.

HANDBOOK OF PRIVATE SCHOOLS, pub. May 1942, 26th ed., 1152 pp., 250 illustrations, 17 maps, $6.00. An Annual Review and Guide Book for all interested in private initiative in education. Individual private schools critically described.

WAR AND EDUCATION: TRENDS AND TENDENCIES TODAY, for early Fall publication, ca 350 pp., cloth $3.50. Appraises changes resulting from the war. Presents evidence that our education leaves us without understanding and without emotional control,—that our current systems of education make possible our present system of wars.

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PORTER SARGENT · 11 Beacon Street · Boston

ART NOW

By HAROLD GREGG
Supervisor of Art, Central District No. 1
Suffern, New York

ART NOW

There is a war going on.
This is a war of ideas.
Art is vital in the expression of ideas.
This war has created new and immediate demands.
This war has shaken our society and changed many of our basic ideas about living together in a democracy.
Art and society — like your body and your nerves react and interreact to these changes.
Teachers are asking, "What now?"

THERE are basic ideas and basic materials used in art expression which are outgrowths of basic human needs. These might be expressed graphically by long strands which surge through years. These strands change and sometimes die a natural death; but cultural paths hold them to a direction. During an emergency many new art forms, or strands, weave their way into the pattern. Some art born of this period, will continue and become basic. Other art will cease to have meaning after the emergency.

The following pages are designed to show how art in schools may fill definite needs during the emergency and in the peace to follow as well as the relation of these needs to the long-time trends in art. The suggested activities are by no means the only possibilities but rather a beginning for the teachers and pupils. It is most important that art take its place in making direct contributions to the war effort. It is also important during this period that we develop art along lines that will be in accord with our society now.

Immediate War Needs

Here are some of the immediate needs which have arisen from the emergency. More can be added. Although we do not believe that just making things is a very valuable art experience, we do know that many things needed can be done better by workers in art. Emphasis should be on speed, ingenuity, accuracy and cooperation with all other agencies.

Examples:

Posters, Signs, Identification tags, Banners, Booths, Displays, Models, Charts, Diagrams, Maps.

For further needs to be met, contact agencies such as:

Red Cross, Salvages Squads, Local Draft Board, Fire Department, Civilian Defense, Air Raid Wardens, Decontamination Squads, Other Groups.

These art jobs are not difficult but they can be as important as steel hats and gas masks. Not the least of the values that an art group will get from this participation in our national crisis is a deep sense of belonging that only active participation can bring.

Art and Military Needs Now.

Art can help in training youth for the service. There is a great need in the armed forces for people who have basic skills and understandings. Some of these skills and understandings are in the field of art. They are:

Sketching, Map making (relief,

flat), Industrial arts, Camouflage of equipment, buildings, personal, Symbols, Photography, Airplane models, Construction, Drafting.

If in our classes and shops we can speed the training of young people for their most effective place in this great struggle and develop their ability to make the adjustments both for the war and the peace, then surely art will be functional.

Therapeutic Value of Art

There are opportunities in this emergency for art in schools to assume a responsibility in relieving tensions and nervousness, in building up self-confidence and in encouraging the expression of ideas. "To get it off your chest, to better understand your own thinking."

Some of the opportunities for therapeutic value in art are:

Workshops, Festivals for art, music, and dance, Craft Groups, Recreational art.

Through these activities young people and teachers reach a sense of stability and soundness. They become more expressive and sensitive. They are bolstered by a sense of accomplishment.

Art Needs New

There are many basic needs of society which should not have to wait until some great disturbing element focuses attention on them. An awareness to community problems develops from the attempt to solve such war needs as:

Housing: for the armed forces, for defense workers, for people. (Architectural Forum recently published the results of a governmental survey of Norfolk, Va. One sentence of the report, "The best accomodations which could be found for the colored defense workers was, half a bed for half a day.")

Community planning: streets, parks, trailer camps.

Furnishings: new furniture designs, mobile, simple, of new materials, for cramped spaces.

Consumer education: evaluation of everyday goods to lead to wiser spending and better value and better taste.

It is not sufficient that the school child know the power of these arts in his society; he should take an active part in some form of dynamic expression of his ideas. School children should have a working acquaintance with the great art movements in our time. They should be able to conduct surveys into housing needs and the means of satisfying these needs. They might plan a community housing unit and so learn how many elements must be taken into account to house a family adequately and with good taste.

If we can develop in our school children an awareness of the needs of human beings during these trying times of war and give them a chance to enter into the satisfaction of these needs, we shall have made a start into the right direction for the time when the peace, with its reconstruction, comes.

Art Needs In Expressing Ideas Now

One has only to look around him to see the great flood of ideas that are pouring in on us. These ideas depend on some form of art to put their meaning across to the people. Those ideas which are most cleverly or sensitively presented have the best chance of accomplishing their mission. Children in schools should know the art of presentation well enough to appreciate

and utilize it in expressing their own ideas.

Some ways of expressing these ideas are:

Cartoons, Books, Illustrations, Exhibitions, Movies, Newspapers, Posters, Pamphlets, Handbills, Billboards, Radio, Displays.

This great democracy depends on well informed people for its survival. We had better look well to the sources, and authenticity and the means of presentation of the information that the populus is being given. Much of this propaganda is trying to arouse us to action.

Just as industrial and labor groups spring into action to meet demands, so the school must shake its shaggy head and get up from the great blow of the war and find its place. There is a great need for art. Teachers and pupils must find out what that need is and their place along with the other forces.

Teachers

Just a paragraph to the teachers—especially to those in the rural county schools. The rural teacher usually has no place,—no one, with whom to talk over problems. I believe that if we had a central county meeting place where teachers would feel free to come and go, to talk, to see and handle books, to handle art materials, to ask questiions, to experiment, to view art work from other schools, to sit in comfortable chairs, to be calm, to step on a rug, to serve themselves with tea or coffee, to listen to the new record that some one has just brought in, to meet in groups for study, to get it off their chests; our educational system would enter a new vital life. Through this center the work of many teachers could be co-ordinated. This would tend to unify teachers on a teacher-directed basis.

A Basis For Understanding Art Now.

This is war to bring about a better world society and a better life within that society. If this be true we had better wake up to the need for a basic understanding of art.

1. Within all human activities and relationships there are *needs.*

It may be a need for better housing —it may be a need to put across an idea—it may be a need to express some feeling or thought—it may be a need for a better environment in which to relax or work—it may be an immediate need for blending the forms and color of men into their surroundings to keep some machine gun from strewing their guts on the ground—it may be _____.

2. We must train people to recognize human needs and then fill them with a drive to *do something* about those needs.

To consider all elements which bear on a human need—to consider all materials or forms upon which the satisfaction of that need might depend—to manipulate the most appropriate materials into the most sensitive forms to satisfy that need.

3. This process is art activity and the result is Art Now.

THE ART OF LIVING

By ALICE HOWARD SPAULDING
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Brookline, Massachusetts

"The gentle minde by gentle deeds is knowne;
For man by nothing is so well betrayed
As by his manners."

Edmund Spenser.

THERE is much talk these days about preparing young people to take their part in the defense industries, in armed services, in medical or nursing professions, in chemical research; but nowhere do we hear much about teaching them to live. Orators elaborate extensively the theme and variations of The American Way of Life, but, except in the political sense, no one defines it. What do they mean by the American Way? More luxurious apartments? more cars? larger incomes? more leisure? Someone once said, "Americans know how to make a living,—none better; but they do not know how to live."

What are the schools doing to teach young people to live? Almost nothing. There should be in every school a course—call it social ethics, social customs, what you will—which will teach youngsters how to get on with each other, how to rise above the law of the jungle as it is exemplified over most of the earth at the present moment; in short, how to meet with assured grace the various social emergencies which arise.

To many persons a course in social customs connotes merely a course in etiquette: the learning of a few rules regarding the proper fork to use or the answer to such questions as "Who should pay the fare?" In reality it is so much deeper and broader than these considerations that one can spend a lifetime in contemplation and practice of the rules of conduct only to find himself confronted by a social situation that taxes to the utmost his knowledge, sensitiveness, tact, self-control, and presence of mind.

Just as in the art of painting, of music, of sculpture, of literature, there is a technique to be acquired before one can become eminent in any field, so also in the art of living there is a technique, the rules of which must be learned and tirelessly practised if one is to become an agreeable member of society. Indeed, there is probably a closer connection than is commonly recognized between manners and morals. In the last analysis, perhaps, it would be found that good manners are the outward expression of perfect morals, a perfect recognition of one's right relation to one's fellowman, or as a clergyman expressed it recently, "The outward expression of inward grace."

How much life would be eased if everyone were skilled in unselfishness, in proper deference, in graciousness, in kindliness! How many quarrels would be avoided if everyone were practised in self-control, in fair play, in tact! and how many enmities need not exist if everyone recognized his responsibilities to his fellowman and

expressed his warm, generous feeling in words and deeds of gentleness and grace! Life would at once take on a beauty, an elegance, a peace, a serenity that comes as near as anything one can imagine to the Christian ideal. There could be no more bickering, no more violence; no loud voices, no pushing or grabbing, no clumsiness; no more hurt feelings, no more resentment; there might even be no more wars. Everyone would see himself in his proper proportion and relation to others, and would strive to express his realization of this proportion and relation in deeds of justice and judgments of mercy.

Impossible! you say; this would be the millenium. Perhaps. Yet it is just this ideal toward which a course in social customs strives: the perfection of the technique of the art of living. One cannot learn it all in a year or in ten years, but one can make a beginning.

Children, normal children, want to know how to behave. They desire earnestly the approbation of their friends and acquaintances. They long for the security that comes with the awareness that they possess the knowledge and experience with which to meet any emergency. Many homes do not and cannot furnish them with this knowledge and experience. A school which cannot so equip them is failing in the most important and fundamental function of education. People can, and many persons do, live very comfortably, and to a degree successfully, their allotted four-score years, knowing very little English, no science, no history, no mathematics beyond addition and subtraction, and nothing of the fine arts; but if they do not know how to get on comfortably with their neighbors, their employers, their co-workers, they are in constant hot water, and they are either feared or cordially hated. In either case they are avoided by all those who are fortunate enough to be able to do so, and they spend their lives bemoaning the fact that they have no friends. Regarded from this point of view, then, good manners are not airs, affectation, a sign of weakness or effeminacy. To quote Lord Tennyson,

"For manners are not idle, but the fruit
Of loyal nature and of noble mind."

Moreover, good manners have in business and in industry a definite economic value; in society they set the mark of distinction upon their possessor. They require for their highest perfection all the moral qualities, unselfishness and consideration for others, self-control, kindness, integrity, loyalty, courage, and all the social qualities — sensitiveness, discretion, tact, poise, adaptability, taste, and a delicate sense of humor. These qualities should be, and sometimes are, inculcated at home. They need to be practised in the home constantly in order to reduce the friction of several personalities in intimate contact; but the school, which is a family on a large scale, multiplies the crises and thus furnishes more scope for the exercise of the essential moral and social qualities. Hence, it is imperative that the school shall elaborate and perfect the teachings begun in the home so that the men and women of tomorrow may give to civilization the reality and to peace the assurance that we ardently desire.

"Ring in the nobler modes of life
With sweeter manners, purer laws."

EDITORIAL

Sue *a* Teacher *for* Malpractice?

By CARL G. MILLER

IT is possible to sue a doctor for malpractice, but, except for damages in the case of intemperate physical punment, not a teacher. Yet, like a doctor, a teacher is a member of a profession. Coincident with the doctor's liability to be sued is his superior earning power; whereas the teacher, with his comparative freedom from malpractice suits, has an inferior earning power. If the reader happens to be a parent, he is now interrogated: Have you ever felt like suing a teacher of your child for malpractice? The author of this editorial is acquainted with teacher parents who have had such feelings. Accordingly, there are a few highly important observations to be drawn from an alignment of such facts as these, and they center in, and radiate about, the word *responsibility*.

Not long ago the author suggested that one of the most important principles of education underemphasized, if mentioned at all, in books devoted to that subject was *confidence*. Pupils must have confidence in their teachers; teachers must have confidence in their administrators; and so on up. Now it appears timely and appropriate to give the same emphasis to the principle of *responsibility*.

First of all, teachers must see that pupils recognize their responsibilities and meet them. This is discipline, nothing but, and it is no outmoded discipline. The preparation of a teacher's assignment, or the completion of the pupil's share of a pupil-planned project, is a pupil responsibility. If pupils develop the habit of meeting them, they are being educated in a fundamental character trait and are receiving mental and physical training as well. If teachers fail to develop such habits, they are not meeting their responsibilities. One of the other fundamental principles in education that goes hand in hand with the one on responsibility is, to be sure, the one that says that the pupil learns by personal performance.

Teachers have special responsibilities for developing certain habits, skills, and understandings that educators recognize as suitable for the pupil levels concerned. For example, during their elementary education American boys or girls of normal intelligence should practically master certain skills and conceptions in arithmetic, skills in reading, skills in spelling, and skills and understanding of grammar that pertain to clear and correct sentence construction. Yet with a certain philosophy of education too much in vogue—one that has the fantastic notion that everything a pupil learns can be pleasurable for the child or that the child goes to school mostly to create something—thousands of intelligent boys and girls in recent years have entered high schools without an approximation of the mastery of fundamental skills agreed on as appropriate for the elementary schools curriculum. When a parent realizes he has such a child on his hands, he does feel like suing some one for malpractice.

Finally, for the brevity of space allowed for this editorial, there is the thought that if teachers met their responsibilities more faithfully and if they were more tough in showing the supporting public very clearly and constantly that they had met such responsibilities, there would be more of an inclination on the part of the taxpayers to give them suitable, or even a liveable, compensation. Considerable, by the way, could be planned in the way of achievement testing to show the public that their children have learned some definite things. As it is, what they have learned is often too vague, and does the public know it!

BOOK REVIEWS

One-Act Plays. By *Marie Anette Webb.* The Macmillan Co. 1940. 443 pages. $1.60.

English teachers who are privileged to have charge of dramatic productions will surely welcome this admirable collection of sixteen recent one-act plays by such eminent writers as Walter Prichard Eaton of Yale, Zona Gale and J. Clark Weaver. Nor will she pass lightly over such interesting and helpful sections as Learning to Recognize Play Types, Reading the Play, and Activities Growing Out of Class Study of the Play. At the end of the book are some fifty pages of Helps for Understanding and Producing the Play, which give practical suggestions on costuming, make-up, lighting, and other topics vital to the successful production of a one-act play.

In her brief preface Miss Webb says, "In arranging the collection, the editor had three main purposes in mind: (1) that the plays be useful and enjoyable for leisure reading; (2) that the plays be suitable for classroom purposes; and (3) that they be appropriate for staging by the students."

Among the plays given in full are "Elmer," by Beatrice H. McNeil; "Grandfather's Chair," by Walter Prichard Eaton; "The Romancers," by Edmond Rostand; "The Maker of Dreams," by Oliphant Down; "Maid of France," by Harold Brighouse, and "Where the Cross Is Made," by Eugene O'Neill.

Miss Webb points out that such plays are especially well suited to reading aloud in class. By such participation the pupil will discover a new field of genuine educational value. "The actual experimenting in dialogue," she says, "tends to make a pupil a more intelligent reader . . . he often gets an excellent understanding of the social problems of life through this method of approach."

The format of this book of 440 pages is admirable; the selections carefully chosen and well adapted for silent reading, reading aloud, or production on the stage; all in all, a very useful book.—E. L. GETCHELL.

Everyday Things in American Life: 1776-1876. By *William Chauncy Langdon.* Charles Scribner's Sons, New York. 1941. 398 pages. $3.00.

This is the second volume in Mr. Langdon's study of everyday things that we Americans have been using since first we settled on these western shores. In Volume I, Mr. Langdon discussed the period from the days of the earliest colonists to those of the War for Independence. The present volume carries the story on to the time of the Centennial Fair, held in Philadelphia in 1876 to celebrate the one hundred years of freedom. Like the first volume, this book is most interesting reading. Mr. Langdon pays especial attention to the problem of transportation. The everyday things of this period were boats of various kinds, from flat-bottomed rowboats to steamships for water travel, the conveyances of roads and of railroads for land travel, and the appliances rendered possible by steam for use in mining, agriculture, invention, manufacturing and communication. The numerous illustrations, gathered from old prints and other sources, add to the interest of the book. This is a fine book, as was Volume I, for every school library. We await with joyful expectation the appearance of Volume III which will undoubtedly deal with the period from 1876 to the present.—WILLIAM P. SEARS, JR., Associate Professor of Education, Principal, N. Y. U. Training Program for War Industries.

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